BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 20 1937

THE CLINICAL AND BIOCHEMICAL SYNDROME IN LYMPHADENOMA AND ALLIED DISEASES INVOLVING THE MESENTERIC LYMPH GLANDS

BY

N. HAMILTON FAIRLEY, M.D., D.Sc., F.R.C.P.

Assistant Physician and Director of Pathology, Hospital for Tropical Diseases, London

AND

F. P. MACKIE, M.D., F.R.C.P., F.R.C.S.

Pathologist, Hospital for Tropical Diseases

(WITH SPECIAL PLATE)

From time to time during the past six years adult patients have been admitted to the Hospital for Tropical Diseases who present what for teaching purposes may be described as the "sprue abdomen," yet subsequent investigation has revealed another cause. There is a history of diarrhoea or looseness of the bowels associated with the passage of large, pale, offensive, fatty, and gaseous stools. Wasting is marked. The skin is harsh and dry, and sometimes shows brownish-yellow discoloration. The abdominal muscles are atrophied, and not infrequently a "doughy feeling" is imparted to the examining fingers. Abdominal distension may be marked. Decreased physical reserve and hypotension are always present; anaemia, muscular cramps, tetany, and lingual features may occur.

The similarity to sprue, however, does not end here, for laboratory investigation generally reveals a common biochemical background consisting of: (1) a high percentage of faecal fat, which is generally adequately split; (2) a flat type of glucose tolerance curve, or one showing a delayed maximal rise; and (3) decreased serum calcium associated with normal or low blood phosphorus. These features are not invariably present in every case. The bilirubin content of the plasma is normal or only slightly increased. Haematological investigations may reveal a typical megalocytic anaemia with hyperchromia, orthochromia, or even hypochromia. In other instances the anaemia may be normocytic with orthochromia or microcytic with hypochromia.

The conditions in which one of us (N. H. F.) has personally encountered this sprue-like syndrome in adults include idiopathic steatorrhoea, some of which were undoubted examples of adult coeliac disease, gastro-colic fistula due to carcinoma, post-operative gastro-jejunocolic fistula (1931), and the present series, which includes lymphoma, lymphadenoma, and lymphosarcoma involving the mesenteric lymph glands. Defective intestinal absorption of certain fundamental food elements is common to the group.

Ryle (1924) described lacteal obstruction with gross overloading of the lacteals with chyme in children with tuberculosis of the mesenteric lymph glands. Clinically they showed stunting of growth, anaemia of either macrocytic or microcytic type, bony changes, tetany, and bulky, fatty stools. Not all these features were present in each case. Ryle pointed out that tabes mesenterica, coeliac disease, and sprue were strikingly similar. He suggested that obstruction of the lacteals might constitute the basis of all these diseases, and that the lacteals would not be obviously dilated at a time when inadequate food was being taken. Davenport Jones (1924) in Bombay reported that he had observed distended lacteals in a case of sprue operated on for appendicitis. Mackie and Fairley (1929) examined the abdominal lymph glands and the receptaculum chyli at necropsy in cases of sprue in the Tropics, but failed to find any abnormality or evidence of obstruction of the mesenteric lymphatic system such as would lead to interference with the absorption of fat from the small intestine. Since then the same authors have performed a number of other necropsies on patients dying in London from sprue and examined soon after death without finding either enlargement of the mesenteric glands or evidence of lacteal obstruction.

There is no reliable evidence that mesenteric lymphatic obstruction constitutes the basis of defective intestinal absorption in sprue, idiopathic steatorrhoea, or coeliac disease. On the other hand, it appears to underlie the clinical and biochemical picture shown in the present series of mesenteric adenopathies which are being reported with the object of interesting those seeing more patients of this type than are available in a hospital dealing essentially with tropical diseases. A combined clinical, pathological, and biochemical study of such cases might well throw new light on the physiology of intestinal absorption.

ILLUSTRATIVE CASES

Case I

A man aged 62 was admitted to hospital on February 19, 1936, with the following history. He had had a healthy childhood and had worked for thirty years with the London County Council without the loss of a single day. In February, 1935, he had had a carbuncle on his face, which required treatment for five weeks. After this he felt "run down." Diarrhoea commenced at the end of May, 1935, and he rapidly lost weight.

FIRST ADMISSION

On June 18, 1935, he was admitted to St. Alfege's Hospital, Greenwich, where the medical findings were as follows.

Examination showed an emaciated man with a sallow complexion, a dry, shrivelled tongue, and a tumid abdomen. The stools were pale and fatty, containing numerous fatty acid crystals: total fat, 55 per cent.; neutral fat, 10.5 per cent.; fatty acids and soaps, 44.5 per cent. The fractional test meal at the end of one hour showed total acid, 50 c.cm. N/10 per cent.; free acid, 30 c.cm. N/10 per cent. Blood was present in all specimens. The urine was normal: diastase, 10 units. Serum calcium, 5.7 mg. per 100 c.cm.; blood phosphorus, 1.5 mg. per 100 c.cm.; van den Bergh (indirect reaction), 1.2 units.

The Wassermann reaction was negative. Blood examination: erythrocytes, 4,100,000 per c.mm.; haemoglobin, 76 per cent.; colour index, 0.9 (June 24); leucocytes, 4,500 per c.mm.; polymorphs, 83 per cent.; lymphocytes, 12 per cent.; mononuclears, 5 per cent. (July 12).

X-Ray Examination.—Barium meal showed a normal stomach and duodenum. Barium enema revealed a distended large bowel, but no other abnormality. A diagnosis of idiopathic steatorrhoea was made.

Treatment.—The patient was treated with fluids to overcome dehydration, and was placed on a low fat diet, including fruit and salads. Radiostoleum and liver extract (1/2 lb. daily) were administered. Under this regime the diarrhoea improved and the patient gained 9 lb. in weight. On August 1 the total faecal fat figure was 43 per cent.; neutral fat, 18.9 per cent.; fatty acids and soaps, 24.1 per cent. On August 9 the serum calcium figure was 8.7 mg. per 100 c.cm. The erythrocytes numbered 4,000,000 per c.mm.; the haemoglobin percentage was 80; the leucocyte figure was 4,000 per c.mm. (September 3). The patient was finally discharged on September 7.

SECOND ADMISSION

On February 19, 1936, the patient was admitted to the Hospital for Tropical Diseases with severe diarrhoea and tetany. He stated that under the treatment outlined he had remained reasonably well until a few weeks previously, when diarrhoea and other symptoms had returned. There were periodic attacks of diarrhoea lasting a few days, followed by intervals of improvement when the stools were soft but formed; at such times he felt fit. During the attacks the bowels acted four to six times a day, commencing in the early morning. The stools were pale, extremely loose, and very offensive; they contained a little mucus. Nausea was often present, but he only vomited occasionally. Pain was localized to the lower abdomen; it was dull and aching in character, and definitely related to attacks of diarrhoea. Fever was absent.

Physical Examination.—The patient was profoundly emaciated and dehydrated. Subcutaneous haemorrhages were present. The tongue was clean, red, and dry, but there were no sores or ulcers. The lower teeth were very septic. The abdominal parietes were thinned; the abdomen was markedly distended, especially in the suprapubic and peri-umbilical region. Tenderness was not elicited, but a "doughy feeling" was imparted on palpation. No enlargement of the liver or spleen was detected, and the intra-abdominal glands were not palpated. No abnormality was noted in the cardiovascular or respiratory system. The blood pressure was 110/80. The temperature on admission was 97° F., the pulse 96, and the respiration rate 24. No enlargement of the lymphatic glands was noted. Trousseau's sign was elicited when taking the blood pressure, but examination of the central nervous system revealed no other abnormality. Recurrent attacks of tetany proved troublesome. The urine was normal in all respects.

Faeces.—The stools were bulky, pale, and pasty, showing fatty acid crystals. No ova or protozoa were found. The total fat figure was 66.5 per cent.; fatty acids, 41.2 per cent.; neutral fat, 25.3 per cent.; split fat, 61.9 per cent.; and unsplit fat, 38.1 per cent.

Blood Chemistry.—The van den Bergh test showed bilirubin, 1.5 units (indirect reaction). The serum calcium figure was 5 mg. per 100 c.cm.; inorganic phosphorus, 2.5 mg. per 100 c.cm.; and the blood urea, 60 mg. per 100 c.cm.

Blood Count.—The erythrocyte count was 3,600,000 per c.mm.; the haemoglobin, 74 per cent.; colour index, 1 per cent.; and the average diameter of the corpuscles was 7.64 microns. The red cells showed anisocytosis, poikilocytosis, and basophilic stippling; normoblasts and occasional megalocytes were seen. The leucocytes numbered 5,000 per c.mm.; the neutrophils, 55 per cent.; the lymphocytes, 36 per cent.; the mononuclears, 8 per cent.; and the basophils, 1 per cent.

Treatment.—The patient was treated by intravenous injections of 50 grammes of glucose in 2 pints of saline, and 10 units of insulin; 12 c.cm. of campolon was given intramuscularly, also six radiostoleum tablets and 120 grains of calcium lactate daily. The diet consisted of a defatted milk powder (sprulac), orange juice, and marmite. Since severe paroxysms of tetany continued, the patient was given 20 c.cm. of a 10 per cent. solution of calcium gluconate intravenously, and 20 units of parathormone. The temperature rose to 100° F., the pulse to 112, and the respirations to 24. Death occurred at 5.45 p.m. on February 22. A necropsy was performed three and three-quarter hours later.

POST-MORTEM EXAMINATION

The body was emaciated and still warm; rigor mortis had not set in. The hands were cyanosed, and the fingers were in typical carpal spasm. Some petechial haemorrhages were present on the legs. The abdomen was protuberant, central distension being marked particularly in the suprapubic and peri-umbilical region.

Thorax.—The right lung was bound down to the chest wall and base of the diaphragm by dense adhesions, while the left lung showed some scarring at the left apex. Congestion, oedema, and anthracosis were present in both lungs. There was no enlargement of the mediastinal lymphatic glands. The heart muscle was of a dark reddish-brown colour; microscopical section showed brown atrophy. There was atheroma of the aorta, with some calcification at the orifice of the right branch of the coronary artery.

Abdomen.—A small amount of yellow fluid was found in the peritoneal cavity. The coils of small intestine were distended. The mesentery was oedematous and studded with numerous firm mesenteric glands, some small, some markedly enlarged, ranging in size from 1 mm. to 1 inch in their longest diameters (see Plate). None were softened or caseated, and they appeared limited mainly to the mesentery of the small intestine, though the caecal and colonic glands were involved to a lesser degree. The gall-bladder was dilated; no enlarged glands were found in the portal fissure, nor were the lymph glands draining the stomach perceptibly enlarged. The mesentery itself was oedematous, and dilated lymphatics were very evident microscopically.

The Alimentary Tract.—The tongue presented a degree of smoothness suggesting papillary atrophy. The oesophagus was normal. The stomach showed patchy congestion and some haemorrhages into its mucosa, while the first four inches of the duodenum presented a "sago-grain-like" appearance, which microscopical examination revealed to be due to clumps of Brunner's glands. No definite ulceration was present. One small nodule located in the submucosa was removed for section three inches from the pylorus. Section showed a vein containing a blood clot which had probably ruptured a short time before death. In the jejunum there were patches of congestion, a few petechiae, and prominent valvulae conniventes; the walls, in places, appeared dilated and thinned, but this was probably only part of the general atrophy. No ulcers were noted. Similar changes were present in the ileum. The caecum was congested. There was a long, kinked appendix extending over the pelvic brim to the left side, which contained concretions resembling date-stones. The descending colon was filled with putty-like faeces. The mucous membrane appeared thickened, and here and there patches of milky-white appearance and pink streaks were noted extending over several square inches. Microscopically some thickening and increased fibrosis of the submucosal layer of the descending colon was found.

The Abdominal Organs.—The liver was small (weight, 1,325 grammes), and normal in colour and consistency. The gall-

bladder was distended with thick, tarry bile. The spleen also was small (weight, 135 grammes) and normal in all respects. Some enlarged glands were noted in relation to the pancreas. The right kidney weighed 210 grammes and the left 165 grammes; both contained numerous retention cysts, but the capsules stripped readily and the cortex was of good width. The pyramids were congested. The bladder and prostate were normal.

Lymph Glands.—No lymphatic glandular enlargement occurred elsewhere than stated.

Endocrine Glands.—The thyroid appeared small and the testicles atrophic. The parathyroids (two dissected out), suprarenals, and pituitary appeared normal, and showed no change on microscopical section.

Brain.—No abnormality was seen.

Bone marrow was obtained from the ribs. Microscopical sections and smears revealed a normoblastic type.

Microscopical Picture.—An extensive microscopical examination of the lymph glands of the mesentery was made, but apart from hyperplasia of lymphoid elements and some increased fibrosis in the mesenteric glands no abnormalities were found. The lymph nodes were present and their normal architecture was preserved. A diagnosis of lymphoma was made on histological grounds.

Comment

The case was one of very great interest, since a condition of hyperplasia of the mesenteric lymph glands, classified as lymphoma and associated with lacteal obstruction, had led to steatorrhoea, tetany, extreme wasting, abdominal distension, and the typical "sprue abdomen." The patient was too ill for the glucose tolerance test, but the combination of a high faecal fat (55–66.5 per cent.) which was adequately split, the low serum calcium (5.7–5 mg. per 100 c.cm.) and a low or normal inorganic blood phosphorus (1.5–2.5 mg. per 100 c.cm.) is typical of defective absorption. The anaemia was of normocytic type and not severe.

Case II

A married woman aged 42 was born in England and went to the Federated Malay States in 1920. She remained there until 1930, when she returned to England permanently. There was a history of four miscarriages and two healthy children. *B. coli* cystitis occurred in 1923 and recurred in 1928. In 1929 she was operated on for uterine prolapse; cellulitis of the leg occurred in the same year.

Present Illness.—For the previous few years she had been feeling "below par" and losing weight, and about a year before admission to hospital began to be troubled with nausea, vomiting, abdominal distension, and flatulence. She had lost 2 st. in weight during the previous year. In March, 1933, there was an attack of diarrhoea lasting a fortnight. Blood was absent from the stools. Nausea and vomiting continued, and since subacute intestinal obstruction of the small bowel was suspected she was admitted to the hospital and operated on by Mr. F. Wilson Harlow, who reported that adhesions and kinking of the lower ileum were found, caused by numerous enlarged glands in the mesentery of the small gut, to which it was adherent. The adhesions were freed and the involved gut was straightened out. At the operation numerous enlarged glands were noted in the mesentery of the small intestine, ranging from the size of an almond to that of a duck's egg. The lymphatics of the small gut were enlarged and stood out like a specially injected museum specimen. The ascending, transverse, and first part of the descending colon were about three times the normal size, resembling Hirschsprung's disease. An effort was made to remove one of the large glands, but it ruptured and several cubic centimetres of milky fluid escaped. A second gland was subsequently excised, and fluid which filled a test tube was removed. This was examined for filarial embryos, and since abdominal filariasis was suspected the patient was subsequently removed to the Hospital for Tropical Diseases for further investigation.

Physical Examination.—The patient was emaciated, the skin dry and atrophic, and the mucous membrane somewhat pale; there were some hard, enlarged glands in the groin. The tongue bore a distinct resemblance to that seen in sprue, being raw in its anterior half, especially along the edges; the papillae were not prominent. The abdomen was distended and the abdominal wall very thin; visible peristalsis was present. There was tenderness in both left and right iliac fossae, but no abnormal mass could be palpated. Neither the liver nor the spleen was demonstrably enlarged. Knee-jerks and ankle-jerks were absent, but no other abnormality was noted in the central nervous system.

LABORATORY INVESTIGATIONS

The intradermal test for filariasis was negative.

Haematology.—The erythrocytes numbered 4,240,000 per c.mm. The haemoglobin percentage was 80; the colour index was 0.94; the average diameter of the corpuscles was 7.64 microns. A mild anaemia, normocytic in type, was present. No filarial parasites were found in the day or night blood. The leucocyte count was 16,000 per c.mm.: neutrophils, 83 per cent.; lymphocytes, 15 per cent.; and mononuclears, 2 per cent.

Serology.—The Wassermann and the filarial complement-fixation reactions were negative.

Blood Analysis.—The bilirubin content of the plasma was normal. The blood calcium content was 10 mg. per 100 c.cm., and that of the blood phosphorus 3.3 mg. per 100 c.cm.

Faeces.—These were negative for ova, protozoa, and acid-fast bacilli. The stools were pale and acid in reaction; they showed soap plaques, but no cellular exudate. The total fat percentage was 75.3, and that of the neutral fat 54.1. The figure for fatty acids was 21.2 per cent., thus only 28.2 per cent. of the fat was split.

Urine.—This had a neutral reaction, and the specific gravity was 1010; there was a trace of albumin. The centrifuged deposit contained numerous leucocytes and epithelial cells; a culture produced *B. coli.* The diastase content was 10 units; the twenty-four-hourly volume was 1,490 c.cm., and the total output was 14,900 units.

Fractional Test Meal.—There was a normal fasting juice, a high secretion of HCl, a maximum of 55 c.cm. N/10 per cent. being found at one and three-quarter hours. Some delay in the emptying was noted, as judged by the starch reaction.

Glucose Tolerance Curve.—This was of the flat type, and showed a maximal rise of only 17 mg. per 100 c.cm. at one and a half hours (Chart 1).

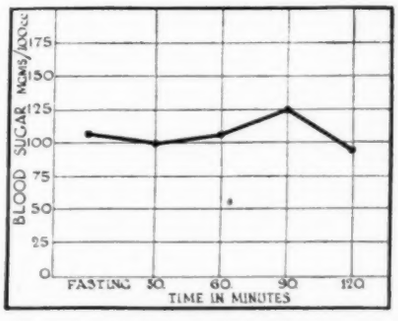


CHART 1.—Case II. Oral glucose tolerance curve in case of mesenteric lymphadenoma.

A radiograph of the chest failed to reveal enlargement of the thoracic glands.

Biopsy of the Gland.—Microscopical examination of an inguinal gland showed typical Hodgkin's disease.

Comment

Many features suggested tropical sprue; the sore tongue, the loss of weight, and the distended abdomen, with its atonic wasted parietes and visible peristalsis, are found in this condition. Diarrhoea was not a con-

spicuous feature, though bouts of it occurred from time to time, and while in hospital the patient was passing from one to four stools daily; these contained a great excess of fat (75.3 per cent.) which was inadequately split. The finding of a normal serum calcium is of interest. Most of the excess faecal fat was present as neutral fat and not as fatty acids, and perhaps this was the reason why there had been no undue interference with the absorption of calcium. On the other hand, there was a flat type of glucose curve with a delayed maximal rise of only 17 mg. per 100 c.cm., similar to that encountered in sprue and idiopathic steatorrhoea.

Case III

A married woman aged 32 had suffered from malaria in 1931; shortly after her return to India in September, 1933, she had passed frequent, very loose, pale stools, associated with abdominal flatulence and discomfort. She did not complain of cramps or tetany. The tongue never felt sore, but was unduly red around the edges. Later there was a *B. coli* infection of the urinary tract.

FIRST ADMISSION

On admission to the Hospital for Tropical Diseases, London, on April 20, 1934, the patient had a sallow complexion and a clean, moist tongue. The abdominal parietes were atrophic, and on palpation a "doughy feeling" was imparted to the examining fingers. Although the pressure of bedclothes caused discomfort to the limbs and there was numbness of the legs and feet there were no abnormal signs indicating involvement of the central nervous system.

LABORATORY EXAMINATIONS

Blood.—The erythrocytes numbered 4,720,000 per c.mm. The haemoglobin percentage was 80, and the colour index 0.85. The average diameter of the corpuscles was 7.32 microns. The leucocyte count was 12,000 per c.mm.: neutrophils, 65 per cent.; lymphocytes, 29 per cent.; and mononuclear cells, 6 per cent.

Faeces.—The pale semi-formed stools were slightly acid to litmus, and contained fatty acid crystals. The total fat percentage was 30, and that for neutral fat 14. The figure for fatty acids was 16 per cent., for split fat 54.8 per cent., and for unsplit fat 45.2 per cent.

Urinary Examination.—The urine contained a few leucocytes and squamous epithelial cells. A culture was negative for *B. coli*.

Fractional Test Meal (April 21, 1934).—The fasting gastric juice amounted to 40 c.cm.; it contained no free acid. There was hypochlorhydria, the maximal rise of HCl being 10 c.cm. N/10 per cent. at two hours. There was a slight response to histamine.

Glucose Tolerance Test.—The graph was practically a straight line, the maximal rise of 10 mg. occurring at one and a half hours (Chart 2).

The history and clinical features, the excess of fat in the stools, the hypochlorhydria, and the flat type of glucose tolerance curve suggested a diagnosis of tropical sprue and the patient was treated accordingly. She received a high protein dietary, acid. hydrochlor. dil. *B.P.* (1 drachm t.d.s., p.c.), and four tubes of liver extract (the equivalent of 1 lb. whole liver) daily. Under this regime the symptoms ameliorated, the flatulence and abdominal distension disappeared, and the discomfort and numbness of the legs greatly improved. There was also an improvement in the glucose tolerance, but the fat content of the stools and the blood counts remained stationary.

LATER LABORATORY EXAMINATIONS

On May 15, before her discharge, the findings were as follows.

Glucose Tolerance Curve.—The maximal rise at one and a half hours was now 33 mg. per 100 c.cm., instead of 10 mg. on April 25 (Chart 2).

Fat analysis showed total fat, 32.5 per cent.: neutral fat, 7.7 per cent.; fatty acids, 24.8 per cent.; split fat, 76.2 per cent.; and unsplit fat, 23.8 per cent.

Blood Examination.—The red cells numbered 4,420,000 per c.mm.; the haemoglobin percentage was 80; the colour index 0.9; and the average diameter of corpuscles, 7.48 microns.

The patient was discharged from hospital feeling well on May 26. At no time had there been any rise in temperature.

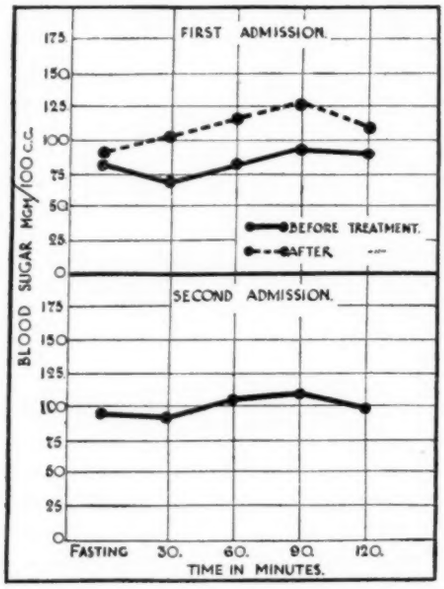


CHART 2.—Case III. Oral glucose tolerance curves in case of mesenteric lymphosarcoma.

SECOND ADMISSION

Three months later, on August 27, she was readmitted to hospital with a temperature of 100.4° F.; the pulse rate was 102 and the respiration rate 24. She looked pale and ill; the abdomen was now somewhat distended, and on examination yielded a doughy sensation to the palpating fingers. She had kept quite well since discharge from hospital until two weeks previously, when diarrhoea with pale, watery, frothy stools, flatulence, and loss of appetite commenced; vomiting ensued. There was some enlargement of the axillary and inguinal glands; a mass of possible mesenteric glands was palpable in the lower abdomen centrally.

LABORATORY INVESTIGATIONS

Blood Examination.—The red cell count was 4,400,000 per c.mm.; the haemoglobin 85 per cent.; the colour index 0.97; and the average diameter of corpuscles was 7.48 microns. The leucocyte count was 10,000 per c.mm.: neutrophils, 72 per cent.; lymphocytes, 22 per cent.; and mononuclears, 6 per cent. The red cells showed some anisocytosis.

The *urine* was normal; cultures proved sterile.

The *stools* were very pale and of liquid consistency, with an acid reaction to litmus. Numerous fatty acid crystals were present. The total fat figure was 43 per cent.: fatty acids, 30.5 per cent.; neutral fat, 12.5 per cent.; split fat, 71 per cent.; and unsplit fat, 29 per cent.

Glucose Tolerance Test.—This was performed on August 30, and showed a flat type of curve with a maximum rise of only 13 mg. at one and a half hours (Chart 2).

Biopsy of Skin Nodule.—Section of a nodule in the skin which had been removed under local anaesthesia showed considerable infiltration of the dermis with lymphoid cells showing active mitosis. The microscopical picture suggested lymphosarcoma, though Hodgkin's disease could not with certainty be excluded.

X-ray examination of the thorax and abdomen revealed no abnormality.

The patient was given a high protein dietary (sprulac), with acid. hydrochlor. dil. *B.P.* after meals, but on this occasion

she failed to improve. Subconjunctival oedema was noted on September 14, and vomiting and anorexia became troublesome on October 2. Ten days later the patient became collapsed, cyanosed, and comatose, and died the next day.

Comment

Features of interest in this case are: (1) the presence of a clinical syndrome simulating sprue and associated with a palpable mass of ? abdominal lymph glands, and a skin nodule which histological investigation suggested lymphosarcoma; (2) the associated steatorrhoea and flat glucose tolerance curves; (3) a remission of symptoms for a period of three months; and (4) the pyrexial relapse, which terminated fatally and which is a feature of abdominal lymphosarcoma, though not of uncomplicated sprue. The anaemia was mild and of normocytic type. Permission was not granted for a necropsy, so the exact distribution of the glandular involvement was not determined.

We recently saw another case of lymphoma, associated in this instance with steatorrhoea and profound megalocytic anaemia, in consultation with Dr. Adolphe Abrahams and Dr. R. J. V. Pulvertaft at the Westminster Hospital.

Case IV

A man aged 60 was admitted to the Westminster Hospital on November 18, 1935, under Dr. Adolphe Abrahams, with anaemia, loss of weight (27 lb.), and diarrhoea, characterized by pale yellow frothy stools. He had previously suffered from malaria and amoebic dysentery, and since he had resided in Ceylon for many years tropical sprue was suspected.

Onset.—Enlargement of the groin glands had been noted in the summer of 1934, and in November, while in Tangiers, diarrhoea and fever had commenced. Hodgkin's disease was diagnosed.

Physical Examination.—The tongue was smooth and fissured; dental caries and pyorrhoea were noted. There was pallor of the mucous membranes, a greyish discoloured skin, and marked bilateral enlargement of the inguinal, femoral, and axillary glands. The glands were soft and discrete, and some of the groin glands were the size of an almond. Wasting was present. The abdomen was distended and hyper-resonant, and the abdominal veins were dilated. The central nervous system was normal.

LABORATORY EXAMINATION

The erythrocyte count was 990,000 per c.mm.; the haemoglobin percentage, 25; the colour index, 1.3; and the average diameter of the corpuscles, 8.4 microns. The leucocytes numbered 3,200 per c.mm.: neutrophils, 56 per cent.; lymphocytes, 36 per cent.; eosinophils, 5 per cent.; monocytes, 2 per cent.; and myelocytes, 1 per cent.

Faeces.—The percentage of neutral fat was 5.4; of fatty acids, 29.7; of soaps, 16.4; and of total fat, 51.5. Fatty acid crystals and striated muscle fibre were noted microscopically.

A section of a gland removed at biopsy revealed a generalized lymphoid hyperplasia.

Progress Notes.—Liver injections and four blood transfusions were given. By January 1, 1936, the blood counts were as follows: erythrocytes, 2,150,000 per c.mm.; haemoglobin, 55 per cent.; and the colour index, 1.3. The leucocytes numbered 5,400 per c.mm.: polymorphs, 51 per cent.; lymphocytes, 37 per cent.; eosinophils, 11 per cent.; and hyalines, 1 per cent. After January 2 a series of campolon injections, 6 c.cm. daily, and a high protein, low fat, low carbohydrate type of diet were instituted. Rapid progress followed. Some oedema of the legs was noted on January 13, but this improved later. By January 17 the red cells had risen to 4,000,000 per c.mm. and the haemoglobin percentage to 85. The colour index was 1.06, and the leucocytes numbered 10,000 per c.mm.

The patient became practically well, and went home on February 3. He proceeded to Scotland, later relapsed badly, and in July was treated by Dr. Forest Smith with a fat-reduced diet, calcium, radiostoleum, marmite per os, and injections of hepastab. A satisfactory haematological response again followed, the red cells rising from 1,400,000 to 4,100,000 per c.mm., and the haemoglobin from 36 to 78 per cent. At the moment the patient is receiving hepastab injections (4 c.cm. monthly) and appears well, but glands the size of a cherry are present on both sides of the neck, in the groins, and one axilla.

Comment

Since this patient had resided in Ceylon the possibility remains that the condition is one of lymphoma and intercurrent tropical sprue. On the other hand, the glandular enlargement definitely preceded the onset of diarrhoea by several months, which suggests, in view of the cases cited above, that mesenteric gland involvement is the basis of the syndrome. The case differs from the other three in presenting a frankly megalocytic type of anaemia, and this may be due either to additional involvement of the gastric and duodenal lymph nodes, with defective production of Castle's intrinsic factor, or to defective absorption of p.a. factor in the intestine. The diagnosis, however, cannot be regarded as finally settled, and the history is recorded with a view to stimulating further investigation in cases of this type.

General Discussion

The exact histological diagnosis of glandular lymphatic enlargement is frequently unsatisfactory, and pathologists themselves often express different opinions on the same section. In Cases I and IV hyperplasia of the cellular elements associated with some degree of fibrosis was found; since the lymph nodes were present and their normal architecture was preserved the condition was classified as lymphoma, though some would diagnose lymphosarcoma. Case II was definitely one of Hodgkin's disease, but in Case III some doubt remained as to whether the disease was lymphosarcoma or atypical Hodgkin's disease. This paper, however, is not concerned with the minutiae of histological diagnosis, but rather with a group of adenopathies involving the mesenteric lymph glands, resulting in lymphatic obstruction, malabsorption of fundamental food elements, and the production of a sprue-like syndrome with death in three of the four cases reported. In both instances where it was possible to examine directly the mesenteric lymph nodes enlarged glands associated with stasis and dilatation of the afferent lymphatics were demonstrated.

Lymph stasis would naturally result in defective absorption of fat, since the mesenteric lymphatics constitute the route through which fat normally reaches the circulation. Steatorrhoea and malnutrition would follow. Presumably also the absorption of fat-soluble vitamins such as A and D might likewise be interfered with, and failure of the latter vitamin to reach the tissues in sufficient concentration might well underlie the severe degree of hypocalcaemia and tetany noted in Case I. In this instance there was a proved excess of free fatty acids in the stools, and these, by uniting with calcium to form insoluble soaps, would further decrease the availability of ingested calcium for absorption. Similarly, the flat types of oral glucose tolerance curves noted in Cases II and III are to be interpreted in terms of defective absorption of carbohydrate.

Similar curves are found in tropical sprue, idiopathic steatorrhoea, and coeliac disease. Fairley (1936) in tropical sprue and Ross (1936a) in coeliac disease have recently shown, in contradistinction to the results of Thaysen (1929), that flat oral curves are associated with decreased and not increased glucose tolerance, and that they originate from defective absorption of glucose in the

gut and not from its excessively rapid utilization by the tissues. In three children with tabes mesenterica Ross (1936b) also found oral curves of a flat type associated with intravenous curves of high type, and concluded that defective absorption of carbohydrate was responsible for the decreased glucose tolerance manifested by these patients. In the present series of cases the glucose tolerance following the intravenous injection of glucose was not determined, but in the steatorrhoeas flat oral glucose curves are often found in association with high faecal fat, and it is evident that defective absorption of both glucose and fat frequently occur together. Verzár (1936) has recently shown that phosphorylation controls the absorption of both fatty acids and glucose in the cells of the intestinal mucosa. Perhaps under the conditions of intestinal lymph stasis described in this paper the phosphorylation process is defective, and lowering of the absorption gradient for both these substances results.

Conclusions

1. A sprue-like syndrome associated with lymphoma, lymphadenoma, and lymphosarcoma of the mesenteric lymph glands is recorded in adults.

2. Steatorrhoea was present in all four patients, one of whom died with severe tetany and hypocalcaemia.

3. Flat oral glucose tolerance curves similar to those encountered in sprue were found in both cases investigated from this viewpoint.

4. It is suggested that defective intestinal absorption resulting from lymphatic obstruction is responsible for the biochemical and clinical findings recorded above.

We wish to acknowledge our indebtedness to Dr. Adolphe Abrahams, Dr. R. J. V. Pulvertaft, Dr. Forest Smith, Mr. F. Wilson Harlow, and Dr. G. H. Garnett for supplying the detailed clinical and pathological data included in certain of the case histories.

REFERENCES

Fairley, N. H. (1936). *Trans. roy. Soc. trop. Med. Hyg.*, **30**, 9.
—— and Kilner, T. P. (1931). *Lancet*, **2**, 1335.
Jones, I. D. (1924). Ibid., **2**, 525.
Mackie, F. P., and Fairley, N. H. (1929). *Indian J. med. Res.*, **16**, 799.
Ross, C. W. (1936a). *Trans. roy. Soc. trop. Med. Hyg.*, **30**, 33.
—— (1936b). *Arch. Dis. Child.*, **11**, 215.
Ryle, J. A. (1924). *Guy's Hosp. Rep.*, **74**, 1.
Thaysen, T. E. Hess (1929). *Arch. intern. Med.*, **44**, 477.
Verzár, F. (1936). *Absorption from the Intestines*, p. 113, Longmans Green and Co., London.

Mary Gover (*Publ. Hlth. Rep. Wash.*, October 9, 1936, p. 1399) states that six of the seventeen years since the summer of 1919 have failed to show more than the seasonal expectancy of deaths from influenza and pneumonia. During the other eleven years recognizable outbreaks of influenza have occurred. Mortality in about ninety-five cities scattered throughout the United States shows that the total excess mortality in these epidemics has varied from 99.3 per 100,000 from influenza and pneumonia in 1919–20 to 5.4 per 100,000 in the winter of 1934–5. In the winter of 1935–6 there were two periods of high mortality—namely, from December 20 to January 18 and from February 9 to May 2. The reported cases in forty-four States and New York City roughly paralleled the curve of mortality for 1935–6. From December 29 to May 2 there were 121,011 cases of influenza reported, an excess of 78,213 cases over the number reported in the corresponding period for 1934 while the incidence of influenza was low. The epidemic of 1936 started in the West South Central section and spread through the Southern States to the east coast. In both the West and East South Central areas mortality from influenza and pneumonia continued well above the normal expectancy from December, 1935, to the first part of May, 1936. It did not, however, reach extreme proportions in any section.

TREATMENT OF MINOR BURNS BY AMYL SALICYLATE AND OTHER SALICYL ESTERS *

BY

R. LESLIE STEWART, M.B., F.R.C.S.Ed.

Assistant Surgeon, Edinburgh Royal Infirmary

(WITH SPECIAL PLATE)

Injuries due to burns and scalds may be divided into two main classes: (*a*) severe and extensive injuries, where life is endangered by shock and the onset of acute toxaemia; (*b*) less extensive injuries, in which the problem of acute toxaemia does not arise. Cases within the former category need urgent admission to hospital, and the injuries should be treated with tannic acid: cases within the latter category are commonly met with in hospital out-patient departments, and it is solely with these that this paper deals. In treating these less extensive injuries one should aim at employing methods which so far as possible satisfy the following criteria: (1) simplicity of application and infrequent changing of dressings; (2) alleviation of pain; (3) control or eradication of sepsis; (4) minimal overgrowth of granulation tissue on raw surfaces; (5) absence of local or general skin irritation and dermatitis; (6) relatively rapid and sound healing without contractures. For hospital practice, with a constantly changing staff of nurses and dressers, it has been difficult to standardize a sufficiently simple technique, and even when this is attained the results are prone to be upset by the patients themselves, often through a desire to return to work too early, or from unsatisfactory home surroundings and lack of personal cleanliness. For these reasons one cannot but expect occasional disappointments in patients who otherwise should have done well.

At the invitation of the Therapeutic Trials Committee of the Medical Research Council, and through the courtesy of Sir David Wilkie, I have during the last four years carried out an extensive series of clinical tests on the efficacy of certain salicyl esters in the treatment of burns and scalds, all the work being done in the surgical out-patient department of the Edinburgh Royal Infirmary. Various esters have been tested and some hundreds of cases have been treated, as it was considered that little importance could be attached to the results obtained in a small number of experiments.

The circumstances which led to the investigation are of some interest. Salicyl esters, notably methyl salicylate and butyl salicylate, have long been known to have analgesic properties, and amyl salicylate itself was introduced in London as a treatment for burns by Messrs. Strange and Graham (chemists) many years ago. It was tried at Guy's Hospital, but its use was abandoned on account of its smell. This has since been made somewhat less disagreeable by greater purification, and a member of the staff of Messrs. Spencer, Chapman, and Messel, Ltd., heavy acid manufacturers, of Silvertown, having heard of the analgesic properties of the ester, tried it in minor acid burns. His firm were so impressed with the healing obtained in the first few cases that they communicated the news to other firms, one of which (Messrs. A. Boake, Roberts and Co., Ltd.) applied to the Medical Research Council for further information as to the safety and utility of the treatment. The Council's Therapeutic

* A report to the Therapeutic Trials Committee of the Medical Research Council. From the Department of Surgery, University of Edinburgh.

Trials Committee agreed to arrange an investigation of the question, and the work was entrusted to me and my colleagues at Edinburgh. Messrs. A. Boake, Roberts and Co., Ltd., are manufacturers of the salicyl esters, and have supplied large quantities of these substances for the tests. They are also the makers in this country of "abracide," a liquid mixture of isomeric methyl tertiary butyl phenols, which has been found in suitable concentration to blend satisfactorily with amyl salicylate so as to produce a stable analgesic and antiseptic solution.

Amyl Salicylate

In the first series of clinical tests amyl salicylate alone was used, and it was early apparent that this ester was definitely analgesic when applied to the raw surface of a burn or scald. Very satisfactory healing was obtained in approximately two-thirds of the cases treated, but in the remaining third, owing to the presence or onset of relatively mild local sepsis, healing was delayed and antiseptic dressings, such as flavine, had to be substituted. This was not unexpected in view of the fact that laboratory tests had already demonstrated that amyl salicylate has little or no bactericidal power. None of the patients showed evidence of salicylate poisoning or of general toxic absorption. On the other hand, a certain amount of local skin irritation was seen, but in the light of our subsequent findings it seems probable that this was chiefly due to the unnecessary frequency with which the dressings were at first changed.

Amyl Salicylate and Antiseptics

The next stage of the investigation was to treat a series of cases along the same lines but with the addition of an antiseptic to the amyl salicylate. Various combinations were tried and tested bacteriologically before we decided to employ dichloramine-T, because this, unlike many other antiseptics, was found to be readily miscible with amyl salicylate and to give an almost clear solution when used in a concentration of 1 per cent. in the ester. The strength of the solution had later to be reduced by half, since several of the patients complained of considerable discomfort with the higher concentration of dichloramine-T.

Approximately eighty cases of burns and scalds were treated with this mixture. Healing progressed satisfactorily in 90 per cent. of these, but in the remainder some degree of sepsis occurred. The results, on the whole, were thus superior to those obtained with amyl salicylate alone, but even with the dichloramine-T at a strength of only 1/2 per cent. the patients were apt to complain of more discomfort than hitherto, and a further serious disadvantage lay in the fact that the solution was unstable; it quickly lost much of its antiseptic value, and so had to be freshly prepared each day. A certain degree of cutaneous irritation and desquamation continued to cause trouble. On these grounds it was decided that the dichloramine-T mixture was not satisfactory, and another series of tests was begun with amyl salicylate and abracide. In addition to combining well with amyl salicylate, abracide has been shown to possess good germicidal properties, and was claimed to be relatively non-toxic and non-irritating to the tissues.

Fifty-one cases of injuries from burns and scalds were treated, employing a low concentration—namely, 1 in 1,000 of 5 per cent. abracide solution in amyl salicylate. Of these fifty-one cases very satisfactory healing was obtained in thirty-four, the average duration of the treatment being a little over a fortnight. In fourteen cases there was somewhat delayed healing owing to slight sepsis, and more active local infection was encountered in the remaining three patients, though the eventual results were satisfactory. The longest period of active treatment in this group was sixty days. In evaluating these results it should be noted that in certain instances the injuries had been sustained one to three days before the patients came to hospital, and especially in these, but also in some others, infection was already present. As in the previous series, there was often considerable scaling and itching associated with cutaneous congestion even after the lesions had healed. Three patients developed a dermatitis venenata, which in one instance was quite severe. All three had skin tests, and were found to be hypersensitive to amyl salicylate, though not to salicylic acid. No other symptoms indicative of either salicylate or phenol poisoning were met with in our patients.

Benzyl and Methyl Salicylate

Especially in view of the extremely penetrating smell of amyl salicylate it was decided at this stage to test some other salicyl esters under the same conditions. Benzyl salicylate and methyl salicylate were successively used, but apart from alteration and diminution of the odour emanating from the dressings they appeared to have no advantages over amyl salicylate. The results, on the whole, were inferior to those already obtained in regard to sepsis; cutaneous irritation was, if anything, more pronounced, while the analgesic properties of these esters appeared to be distinctly less. Indeed, where discomfort was specially complained of it was found that a change over to amyl salicylate sometimes gave immediate relief.

For the above reasons it appeared that amyl salicylate was the ester of choice, and we now set out to improve the technique of its use in order to decrease the incidence of infection, and obviate, if possible, the occasional irritative dermatitis which seemed to synchronize with a somewhat exuberant growth of granulation tissue on the raw area of the burn or scald. The content of abracide in the mixture was therefore increased to 1 in 10,000 (or 1 in 500 of the 5 per cent. commercial solution), and the changing of the deep or surface dressings was reduced to a minimum. As an outcome of these changes in the method of application our results showed a marked improvement and it is therefore proposed to give a short account of the main features of the technique employed and a summary of the results obtained in a series of forty consecutive cases treated during the past year.

Technique of Treatment

When the patients present themselves at hospital the affected area is cleansed with normal saline, and all raised epithelium is removed. An anaesthetic is rarely needed for minor burns, except in children or where the burnt area is heavily coated with some adherent domestic remedy, such as flour. Spirituous solutions are avoided. Swabs soaked in amyl salicylate and abracide are applied direct to the area, that in actual contact with the raw surface being only two or three layers of gauze in thickness. Wool and a bandage are then adjusted. The patient subsequently attends at four-day intervals, when, if possible, only the outer swabs are removed and the thin one next the lesion is left *in situ*. Fresh outer swabs, wrung out of the amyl salicylate and abracide solution, are applied after any excess of serous discharge has been wiped away. As the burnt area dries up and epithelium grows over it the lowest or primary gauze layer loosens off, and when it completely separates the lesion is found to be healed. Under such conditions the patient has no pain,

and no cutaneous irritation or erythema has so far been met with.

In some instances, owing to a more active exudation, such an "ideal" technique is impossible, and the entire dressing requires to be changed once or even oftener. On occasion there is some scaling or even crusting after the main part of the surface has healed, and olive oil is applied until the scales or crusts separate. Otherwise simple dry gauze dressings are used to protect the recently healed area for a few days.

Results

Very trivial injuries being discounted, forty-two consecutive and unselected cases were treated during the period under review. Two of these cases have been discarded, as the patients, though both doing well, did not complete their treatment at hospital. Another patient (No. 15, Table A) has not been included in the analysis of results (Table B), again on account of ceasing attendance prematurely. Of the remaining thirty-nine patients, twenty-six were males with an average age of 27 years, and thirteen were females with an average age of 25 years. Scalds accounted for most of the injuries, there being twenty-seven of these as against five burns by flames, four by hot or molten metal, two electric burns, and one burn by lime.

Distribution and Extent.—In most cases the limbs were affected, especially the arms, and it was found, as would be expected in patients treated on ambulatory lines, that injuries to the arms and hands tended to do better than those on the legs and feet. The injuries were frequently multiple, but these have been considered as separate entities in the appended tables only where the duration of treatment has shown any marked disparity. The extent of the involved area varied. In some it was relatively small, but in others it was of considerable size—for example, the whole of one aspect of the forearm and wrist, or the lower third of the leg and whole dorsum of the foot. Lesions of the fingers accompanied practically all those affecting the hands.

Degree, Duration, and Initial Sepsis.—In five patients the burns were of third degree, in the remainder they were of second degree (Dupuytren's classification). It will be noted in Table A, under the heading "Duration" (the approximate interval between the time of the injury and the first hospital treatment), that most of the patients presented themselves within a few hours. In eleven cases, however, they did not come until one or more days had elapsed, and there was therefore potential or actual sepsis present from the outset of hospital treatment. In certain cases, even when treatment was begun on the day of the injury, there was already a slight degree of infection, frequently due to the application of some unsuitable domestic remedy. In Table B it will be seen that there is a direct relationship between the depth of the lesion, the presence of sepsis, and the length of time required for treatment.

The Process of Healing.—The results in this series were almost uniformly good. Healing progressed steadily, and it was seldom that any of the patients complained of really appreciable discomfort. Especially when the primary surface dressing remained intact and there was no excessive exudation, the treatment was painless throughout. There was a noticeable absence of exuberant granulation tissue, and no cases of dermatitis were met with. The resulting scars were smooth and pliable, though some showed a little surface scaling, which soon disappeared. No contractures occurred. Another point was that straight-

TABLE A

Case No.	Injury	Sex	Age	Duration in Hours	Degree	Site	Initial Sepsis	Duration of Treatment in Days	Result
1	Scald	M	60	6	2nd	Arm Shoulder	Mild	19	Good
2	Scald	M	24	4	,,	Both feet	Slight	28	,,
3	Burn	M	16	2	,,	Fingers	Nil	16	,,
4	Scald	M	1	1	,,	Arm	,,	20	,,
5	Burn	M	19	1	,,	Hand	,,	12	,,
6	Scald	M	18	3	,,	Both hands	,,	30 16	,, ,,
7	Burn	M	24	24	3rd	Leg	Mild	65	,,
8	Burn	M	41	2	2nd	Forearm Face	Nil	7	,,
9	Scald	F	25	6	,,	Wrist	Mild	16	,,
10	Burn	M	28	3	,,	Both hands	Nil	12	,,
11	Scald	F	20	22	,,	Elbow	Mild	11	,,
12	Burn	M	28	2	,,	Both hands	Nil	10	,,
13	Burn	F	15	3	3rd	Fingers	Slight	34	,,
14	Scald	F	3	23	2nd	Forearm	V. mild	28	,,
15	Acid burn	M	63	2	3rd	Toes Shoulder	Attended for twenty-two days, lesions then satisfactory but not quite healed		
16	Burn	M	38	1	2nd	Forearm face, neck	Nil	15 7	Good ,,
17	Scald	M	33	2	,,	Wrist	,,	16	,,
18	Scald	M	14	1	,,	Forearm	,,	15	,,
19	Scald	M	20	2	,,	Hands & fingers	V. mild	26	,,
20	Scald	M	28	72	,,	Arm	Severe	45	Fair
21	Scald	M	43	2	,,	Ankle, leg, foot	Nil	28	Good
22	Scald	M	58	2	,,	Arm	,,	11	,,
23	Scald	F	40	72	,,	Knee	Mild	28	,,
24	Scald	F	38	2	,,	Leg	Nil	28	,,
25	Burn	M	50	4	3rd	Wrist Elbow	,,	53 28	,, ,,
26	Scald	F	38	48	2nd	Foot	Mild	14	,,
27	Burn	F	4	1	,,	R. knee L. knee	Nil	15 40	,, Fair
28	Burn	M	28	3	3rd	Fingers	,,	27	Good
29	Scald	M	5	3	2nd	Foot	,,	24	,,
30	Burn	M	26	46	,,	Hand	,,	13	,,
31	Scald	F	27	2	,,	Leg	,,	14	,,
32	Scald	M	16	20	,,	Hand	,,	17	,,
33	Scald	F	15	1 wk.	,,	Leg	Moderate	15	,,
34	Scald	F	40	5 dys.	,,	Foot	Marked	36	Fair
35	Scald	F	23	12	,,	Foot	Moderate	34	,,
36	Scald	M	14	3	,,	Foot	V. mild	18	Good
37	Scald	M	7	2	,,	Foot	Nil	16	,,
38	Burn	M	15	1	,,	R. hand L. hand	,,	15 7	,, ,,
39	Scald	F	16	24	,,	Foot	Mild	24	,,
40	Burn	F	20	2	3rd to 4th	Forearm and wrist	?	38	Fair

TABLE B.—*Thirty-nine Patients: Forty-four Separate Injuries*

Injuries	Number	Average Duration of Treatment in Days
Second degree with no infection	24	16.8
Second degree with mild infection ...	11	22.4
Second degree with moderate or severe infection	4	35
Third degree with little, if any, infection	4	36.5
Third degree with infection	1	65

forward healing was obtained in a number of cases in which there was some degree of initial sepsis. In five cases the result has been classified as only "fair," more on account of the fact that some sepsis was encountered during treatment than because the eventual result was not satisfactory. Only in two of these five cases was it necessary to substitute stronger antiseptic measures for a day or two during the course of the treatment. Further, it will be noted from Table A that in three of these patients initial sepsis of more or less marked degree was present when they first attended, and in another the burn was a deep and extensive one on the forearm (No. 40). One other case (No. 7) calls for special mention. This patient was an epileptic, and sustained a third-degree burn of relatively small size, but situated in the avascular scar of an old burn of the leg. Healing was accordingly slow, and he had to attend for sixty-five days.

Illustrative Cases

Case I (*No. 24*).—The patient was a female aged 38. She was seen on April 8, 1936, two hours after a scalding accident to the right leg. Examination showed a four-inch by three-inch second-degree lesion above the right internal malleolus. Primary dressings as above. Healing progressed very satisfactorily, with no exudation through the surface gauze layers. A photograph taken on April 27 shows the surface gauze in position, and a second one, taken on May 5, after the gauze had separated spontaneously, shows a perfectly healed skin area with slight scaling in its centre (see Special Plate). No pain throughout.

Case II (*No. 16*).—The patient was a male aged 38. He sustained second-degree burns of the face, neck, and whole length of the left forearm, caused by a blow-back from a furnace. The accident occurred on March 23, 1936, and he attended hospital one hour later. The raised epithelium was removed and the surfaces cleansed with saline. Amyl salicylate and abracide dressings were applied. The gauze layers in actual contact with the raw surfaces were left intact, and only the top layers were changed at three- and four-day intervals. Progress was rapid. By March 30 the lesions on the face and neck were healed, and by April 7 the forearm was likewise fully healed. No pain throughout. Comment: A recent, clean second-degree burn; primary surface dressing remained *in situ*.

Case III (*No. 39*).—A girl aged 16 was scalded on the right foot on June 4, 1936. A thick layer of flour was applied at home, and she attended hospital on June 5. Examination showed an extensive, moist, mildly infected second-degree lesion over the dorsum of the foot and the front of the ankle. In this case there was some exudation, so that the whole thickness of the dressings had to be changed three days later. Thereafter, though there was a minor degree of exudation, the deep surface gauze was left intact and healing progressed satisfactorily, being complete by June 29. There was some discomfort during the first five days of treatment. Comment: A mildly infected injury of twenty-four hours' duration, which, however, progressed satisfactorily.

Case IV (*No. 34*).—A woman aged 40 attended on May 28, 1936, with a five-days-old second-to-third-degree lesion on the foot caused by a scald. There was a brown slough in the centre and the surrounding skin was congested and swollen. Considerable pain. After gentle cleansing amyl salicylate and abracide dressings were applied. Owing to the nature of the case there was considerable exudation of sero-pus, and the whole thickness of the dressings had to be changed at four-day intervals. By June 15 the condition was painless and the surface very clean. Healing was complete by June 29. Comment: A quite markedly infected burn treated throughout by amyl salicylate and abracide.

Summary

1. Clinical tests in a hospital out-patient department have indicated that amyl salicylate possesses analgesic properties, and can be satisfactorily employed in the treatment of minor burns.

2. It lacks the coagulant effect of tannic acid on the tissues, and is therefore unsuited to the treatment of severe and extensive burns where there is a danger of toxaemia and shock.

3. The ester has little if any bactericidal power, and it therefore requires the addition of an antiseptic. In this series a mixture of isomeric substituted phenols, known by the trade name "abracide," has proved suitable.

4. The method is applicable to the treatment of infected as well as non-infected burns and scalds, provided the initial infection is not too severe.

5. Standardization of technique is very necessary if the best results are to be obtained.

6. Amyl salicylate has an extremely penetrating smell, but the results obtained with other less pungent salicyl esters have been inferior.

I am indebted to Dr. T. H. Durrans, director of research and development to Messrs. A. Boake, Roberts and Co. Ltd., for advice and assistance throughout the inquiry. I am also sincerely grateful to Sister Dewar of the surgical out-patient department of the Edinburgh Royal Infirmary; without her constant supervision of the work of her staff the investigation would have been impossible.

A NOTE ON LITHOPAEDION
WITH REPORT OF A CASE

BY

PAUL CAVE, M.B., D.M.R.E.

Honorary Radiologist, Royal Berkshire Hospital

(WITH SPECIAL PLATE)

Of all pathological conditions lithopaedion probably excites the most curiosity, and for this reason few cases escape being reported. In spite of this tendency to over-publicity the number of cases in the literature is relatively few. For instance, up to 1933 the total was 196 cases, and the number added since then is insignificant. Another illustration of its rarity is derived from the figures of the Mayo Clinic for the years 1903 to 1926. During this period nine lithopaedions were found in 445 cases of extra-uterine pregnancy. The incidence of 2 per cent. is probably the highest that will ever be recorded, as with increased recognition of a retained foetus lithopaedion formation will become still more rare. The paucity of cases is not surprising when one considers the combination of circumstances which must be present before a lithopaedion can be formed.

First, the pregnancy must be extra-uterine. It is true that about half a dozen cases of intra-uterine lithopaedions are reported in the very early literature, but since none have appeared within the last hundred years it is rational to view their authenticity with extreme scepticism. Nor is it possible to discover a case of lithopaedion in the record of pregnancies in bicornuate uteri. Even in a case in which almost full-term twins were retained for twenty years in a bicornuate uterus there was skeletonization, but no calcification.

Secondly, the foetus must survive for longer than three months. If death occurs while the bones are cartilaginous absorption will be rapid and complete. In tubal pregnancy advanced development is rare, and if the tube ruptures on its free side the embryo usually dies in the peritoneal cavity. But secondary intraligamentous implantation is said to favour survival.

Thirdly, the condition must escape medical notice, else it will be terminated by operation; also the mother must survive long enough for calcification to occur. The shortest recorded period is fourteen months from conception, but usually it is many years before the discovery is made.

Fourthly, the foetus must remain sterile. Infection will certainly produce absorption, and moreover will lead to symptoms necessitating operation.

Fifthly, the necessary conditions for deposition of calcium in the tissues must be present. What these conditions are is not fully understood, but an important factor appears to be a sluggish local circulation. In this connexion it is significant that in almost every case of lithopaedion no trace of placenta could be found. An exception to this is recorded by Clark, who found a large necrotic friable placenta attached to the pelvis. In his case, however, there were only a few patches of calcareous matter sparingly interspersed through the external portions of the tissues and in the enveloping membrane.

It would seem probable that the absence of calcification in foetuses retained in a bicornuate uterus, even after the lapse of many years, is explicable on the grounds that the circulation is too good for these changes to occur.

Classification of Lithopaedions and Diagnosis

The sites in which calcium is laid down have formed the basis of a classification of lithopaedions into three types.

1. Lithokelyphos.—The membranes alone are calcified and not adherent to the foetus. The foetus may be unchanged, mummified, or skeletonized. This type is supposed to be due to the membranes remaining intact at the termination of pregnancy.

2. Lithokelyphopaedion.—The membranes and foetus are calcified and are adherent to one another. This type follows the escape or absorption of amniotic fluid.

3. Lithotecnon (true lithopaedion).—The foetus alone is calcified, the deposition of lime salts starting in the vernix caseosa. The escape of the foetus into the abdominal cavity, leaving its membranes behind, is said to account for this type.

Lithokelyphopaedion is probably the most common of the three.

The discovery of a lithopaedion is often accidental—in the course of clinical examination or radiographic investigation, or at post-mortem. The patient may be unaware of her condition. The usual history is of a "mock labour" followed by gradual decrease in the size of the abdomen and the return of menstruation. Progressive shrinking of a full-term foetus to a calcified mass the size of a fist has been observed radiographically by Santé and Emmert. On palpation of the abdomen a hard mass may be felt above the pubis. Sometimes the patient knows of its existence, but attaches no importance to it on account of the absence of pain or discomfort.

In 60 per cent. of cases late symptoms occur. There may be mild abdominal pain, sense of fullness in the pelvis, cystitis, vaginal discharge, and sciatica and constipation from intrapelvic pressure. Abdominal adhesions and rupture of the lithopaedion into adjacent viscera are the commoner serious complications. Diagnosis by radiography is usually simple. The presence of foetal limbs distinguishes the shadows from those of calcified fibroids or dermoid cysts. Compression of the foetus is the rule. There is overlapping of the cranial bones and often an acute dorsal or cervical kyphosis. Distribution of the calcified areas varies with the type of lithopaedion.

Present Case

An obese woman, aged 83, complained of pain in the left hip as the result of a fall. She was referred to me for *x*-ray examination. The radiograph showed a crushed fracture of the greater trochanter, and also dense shadows in the pelvis. Some of these shadows were obviously of foetal bones. I endeavoured to get the patient to return for a thorough examination of the pelvis, but she would not consent. A few days later she died of cerebral haemorrhage. Her only relative, a niece aged about 50, refused permission for a post-mortem investigation, but agreed to an *x*-ray examination of the body. She informed me that her aunt had been a particularly healthy woman who had hardly ever required medical attention. There was one child born about fifty years previously. The niece remembered that some time after the birth of this child her aunt thought that she was again pregnant. However, labour did not come on and the incident was forgotten. The date of this pregnancy is not known, but it is likely to be more than forty-five years ago.

On palpation of the abdomen, when the body was brought for *x*-ray examination, I found a large, hard, smooth swelling resembling a foetal head above the pubis. The anteroposterior view shows a calcified full-term foetus lying on its left side in the pelvis. The head is to the right and the back to the left of the midline. The arms and legs are flexed. The lateral view shows the breech lying in the hollow of the sacrum. The head and thorax are above the pelvic brim. The head is acutely flexed on the chest. This view makes it obvious that the hard mass felt above the pubis was the back of the neck and shoulders and not the head. There is very slight overlapping of the cranial bones, but it is not sufficient to decrease materially the size of the foetal skull. The thoracic and lumbar spines are almost straight.

Calcification is chiefly in the membranes, which appear to be about the thickness of a foetal rib. Calcification is also seen in the tissues, especially in the arms. Thus the lithopaedion may be classified under the type known as lithokelyphopaedion.

I am indebted to Dr. Leggatt of Newbury for permission to publish the case, and to Mr. A. O. Forder, Royal Berkshire Hospital, Reading, for the radiographic prints.

BIBLIOGRAPHY

Bland, P. B., Goldstein, L., and Bolton, W. W. (1933). *Surg. Gynec. Obstet.*, **56**, 939.
Butler, P. F. (1929). *Amer. J. Roentgen.*, **21**, 365.
Clark, J. G. (1897). *Johns Hopk. Hosp. Bull.*, **8**, 221.
D'Aunoy, R., and King, E. L. (1922). *Amer. J. Obstet. Gynec.*, **3**, 377.
Emmert, F. (1932). *Surg. Gynec. Obstet.*, **55**, 646.
Goodwin, A. (1931). *Trans. med. Soc. Lond.*, **54**, 137.
Grimm, H. W. (1931). *Radiol.*, **17**, 576.
Johnson, C. G., and Wills, S. H. (1934). *Amer. J. Obstet. Gynec.*, **28**, 282.
Masson, J. C., and Simon, H. E. (1928). *Surg. Gynec. Obstet.*, **46**, 500.
Otell, L. S. (1932). *Amer. J. Obstet. Gynec.*, **23**, 894.
Santé, L. R., and Emmert, F. (1932). *Amer. J. Roentgen.*, **127**, 262.
Scott, Ernest, and Forman, J. (1916). *Amer. J. Obstet.*, **73**, 470.

J. Dörffel and W. Lutterberg (*Derm. Wschr.*, January 2, 1937, p. 1) review the different causes of sterility in men. Collected statistics show that bilateral gonorrhoeic epididymitis is responsible for 50 to 100 per cent. of azoospermia. The authors think that only those statistics are useful which are based on the examination of the ejaculated semen in all cases of bilateral epididymitis, and not only in cases which come for examination as a result of alleged sterility. The authors' personal investigations have shown sterility to occur in about 50 per cent. of all cases of bilateral epididymitis. Recanalization of the duct occurs only very rarely. Azoospermia was found also in a number of cases of unilateral epididymitis and also in certain constitutional disturbances. There seems to be a relationship, too, between excessive smoking and azoospermia.

AN OPERATION FOR THE CURE OF ADULT HYPOSPADIAS

BY

ARCHIBALD H. McINDOE, M.S., M.Sc. F.R.C.S., F.A.C.S.

Assistant Plastic Surgeon, St. Andrew's and St. James Hospitals; Chief Assistant in Plastic Surgery, St. Bartholomew's Hospital; Consulting Plastic Surgeon, North Staffordshire Royal Infirmary

(WITH SPECIAL PLATE)

Those who undertake the responsibility for the radical cure of hypospadias know that it can be one of the most difficult of all surgical conditions to bring to a successful conclusion. Cabot (1935) points out that the basic requirements of a thoroughly satisfactory operation are that it should overcome the disability and avoid the production of new disabilities such as stricture formation or growth of hair within the newly formed urethra. At the same time it should be sufficiently simple and certain of freedom from post-operative complications, such as fistula formation, to enable it to be carried out with a reasonable prospect of success by a well-trained surgeon.

Technical Problems

The construction of a new urethral canal demands a high degree of technical skill; even then it may fail, because the method necessarily violates some of the cardinal principles of plastic repair, particularly when applied under the disintegrating effect of the urinary stream. There is, in fact, real need for an operation which is reasonably easy to perform and more certain of success than many of those in common use. Apart from associated abnormalities such as hernia or retained testes, the three practical considerations in the hypospadiac are concerned with the redundant dorsal prepuce, the ventral penile curvature, and the absent urethra. Briefly, the dorsal prepuce is disposed of by incorporating it into the ventral length, either by the excellent method of Edmunds (1926) or by the more recently described procedure of Browne (1936). The effect of this is to distribute the available skin equally over the penile surface in such a way that the dorsal excess is transferred to the deficient ventral surface. Straightening of the ventral penile curve is effected by removal of the urethral cord and the remains of the corpus spongiosum. Finally a new urethral canal must be constructed.

There is no particular difficulty in carrying out the first and second of these procedures, chiefly because they are easy to perform, and the suture line is not subjected to the passage of urine over it. It would be generally agreed that the third problem—namely, the construction of a new urethra—is the most difficult step in the necessary series of operations. Certainly the extraordinary number of proposed methods bears this out, and an examination of them will show that while some are practical and feasible others are fantastic and have no possible use.

All of them rely upon one of three different methods of plastic repair—namely, the use of local flaps, tube pedicles, or free grafts. The first is satisfactorily represented by the various modifications of the Marion–Duplay (1886) procedure, Cabot's (1935) modification of Bucknall's (1907) operation, and Ombrédanne's (1923) operation. The second depends upon the use of extraneous tissue transplanted from a distance by means of the Gillies tubed pedicle. Free grafts are made use of in the procedures of Nové-Josserand (1914), Rochet (1932), and Mayo (1901). While all of these methods have been successfully employed on many occasions, the last—namely, the use of free grafts—has fallen into disuse, and has been generally condemned.

More recently Borchers (1928) and Begg (1935) have recorded interesting experiences with the tunnelling operation, and have suggested modifications in technique. To anyone who has had experience of the great success of the Esser (1917) principle of inlay grafting it would appear that free grafting is the most reasonable method of constructing a new urethra. It can be undertaken with a high degree of certainty without utilizing penile skin and with none of the dangers of breaking down associated with suture lines in this region. In this communication I wish to show that Nové-Josserand's operation, when modified in certain important particulars, is not only feasible but gives in adult hypospadias what I believe to be the simplest and most satisfactory method of producing a new urethral canal.

Principles of the Operation

Nové-Josserand proposed that after the usual straightening of the ventral curvature a tunnel should be bored through the penis from the posterior fistula to the tip of the glans and a catheter covered with Thiersch graft be inserted into the canal. He recommended that the catheter should be removed at the end of eight to ten days and the skin-lined passage be dilated periodically with bougies. Anyone with an intimate knowledge of the behaviour of grafted skin will admit the immediate criticisms that such contraction will occur that the canal would become hopelessly stenosed and periodic dilatation will fail to maintain its patency. This is, in fact, the uniform result of the operation, and explains why it has fallen into disuse.

The modern epithelial inlay demands the introduction of thin, hairless epidermis into a subcutaneous cavity, made larger than the ultimate size required, and maintained in a distended position for a period which exceeds by a considerable margin the contractile phase of grafted skin—namely, three to six months. Under these conditions an epithelial canal can be constructed in which stenosis does not occur.

I was first encouraged to try the effect of a penile epithelial inlay in an adult patient with hypospadias in whom so many operations of a flap type had been performed that the ventral skin of the penis was scarred beyond any hope of making local flaps. After constructing a tunnel through the penis I introduced a skin-covered catheter, and maintained the patency of the new canal continuously for a period of six months. At the end of that time the proximal end of the new canal was anastomosed to the hypospadiac meatus with such a satisfactory result that I have employed the same principle on other adult cases with gratifying results. So far it has not been used for children.

The method, however, has been considerably modified. It would seem a comparatively simple matter to introduce a skin-covered catheter through the penile tunnel. It is, in fact, extraordinarily difficult to do so and at the same time to prevent the graft being rucked off the catheter during its passage along the tunnel. An introducer was therefore devised which overcomes this difficulty and renders the operation extremely easy. The instrument resembles a large suprapubic trocar, except that the handle and the cutting point can be unscrewed, leaving a smooth hollow barrel five inches long and with an internal

diameter sufficient to admit a No. 11–12 English gum-elastic catheter covered with Thiersch graft (Fig. 1 on Special Plate).

Technique of the Operation

The operation is performed three to six months after the usual readjustment of the dorsal prepuce and the straightening of the ventral curvature. A thin razor graft, or Thiersch graft, is cut from the inner side of the arm and carefully applied, raw surface outwards, like a cigarette paper, to a piece of No. 11 English gum-elastic catheter, which just fits in width and length the barrel of the trocar. The graft is tied at either end with a single strand of 000000 catgut. It is then carefully placed in the barrel of the instrument and the cutting point and handle are screwed into position.

With the patient in the lithotomy position a small stab incision is made just distally to the perineal meatus and another at the dimple usually present at the tip of the glans. The trocar introducer is then thrust subcutaneously along the penis from the posterior stab incision until the point emerges at the tip of the penis (Fig. 2). The manœuvre, while not easy, can be facilitated by introducing a long slender pair of scissors with Mayo points, in order to divide any fibrous bands which may obstruct the onward passage of the instrument. When it emerges the cutting point of the introducer is unscrewed and the end of the skin-covered catheter is gripped firmly with a pair of forceps. The barrel of the instrument is carefully withdrawn through the posterior opening, leaving the catheter in place and its skin covering undisturbed. One-inch gauze tape soaked in mastisol is then bandaged round the penis fairly firmly, so that when the mastisol sets an efficient casing results which maintains the necessary pressure on the graft and prevents erection of the organ. The entire procedure need not take more than twenty minutes to perform. It is advisable to place a catheter in the bladder for forty-eight hours through the posterior meatus, in order to prevent urine coming in contact with the graft.

At the end of ten days the casing is removed, the catheter is withdrawn, and the skin-lined urethra is syringed through with saline solution or half-strength eusol. A fresh piece of gum-elastic catheter is immediately placed in the urethra, and at no time for the next three to six months is this left out for more than the five or ten minutes required to cleanse the canal (Figs. 2, 3). It is necessary to make this point absolutely clear to the patient, for twenty-four hours without the catheter will cause hopeless stenosis of the cavity.

After three to six months the contractile phase should be over, and the catheter can be safely left out. In six months' time end-to-end anastomosis of the posterior end of the new urethra and the hypospadiac fistula is performed over a short piece of catheter. The nearer the perineum this anastomosis can be made the easier it is to perform. Care is taken to see that the knots suturing the tiny lining flaps are drawn into the urethral canal. If there is any difficulty about this Edmunds's method of passing a threaded needle backwards along the urethra in order to catch the knots and draw them through is useful. The external covering flaps are sutured with mattress sutures of ophthalmic silkworm-gut.

Advantages and Difficulties

The advantages of this operation are many. It does not require the diversion of the urinary stream at any time during its performance, and a short piece of catheter is really only required at the last stage of end-to-end anastomosis. I am not sure whether even then it is really necessary. The introduction of the skin-covered catheter is rendered easy by means of the introducer, and this important stage need take only a few minutes.

As with other types of inlay graft, a perfect take should result in a very high percentage of cases, while continuous dilatation maintained until the contractile phase of the grafted skin is well over prevents subsequent shrinking and stenosis. The appearance from the cosmetic standpoint is much superior to that of any other method, particularly at the meatus, which is placed at its correct anatomical position at the tip of the glans. Thus the urinary stream is likely to be better projected than following operations of the flap type, where the meatus is more ventrally situated and a certain amount of spraying is common. Another important advantage is that hair need not be included in the urethral lining—an all too common result of the flap operation.

The total time taken to make a functioning urethra is, I think, rather longer than with other methods, owing to the prolonged period of continuous dilatation necessary, somewhere about nine to twelve months elapsing from start to finish. On the other hand, the actual period of hospitalization is relatively short—five to six weeks—while between the four operations the patient is perfectly able to conduct a normal life. From the surgical point of view one is freed from the tiresome and irritating business of closing and reclosing the fistulae which so often develop in adult patients along the suture line of the flap operation.

The difficulties of the operation are chiefly concerned, first, with cutting a perfect Thiersch graft, and secondly, performing with considerable refinement of technique an end-to-end anastomosis of the new urethra to the hypospadiac meatus. The first requires constant practice; the latter is made easier because it can be done at a point in the perineum or base of the penis where a substantial mass of tissue can be brought in from the sides to reinforce the internal suture line and so largely diminish the chance of leakage. The only disadvantage of a Thiersch-grafted urethra is that it is not extensible, but this is the fault of all operations for hypospadias.

REFERENCES

Begg, R. Campbell (1935). *N. Zealand med. J.*, **34**, 378.
Borchers, E. (1928). *Z. Urol.*, **22**, 808.
Browne, Denis (1936). *Lancet*, **1**, 141.
Bucknall, R. T. H. (1907). Ibid., **2**, 887.
Cabot, Hugh (1935). *Proc. Staff Meet. Mayo Clinic*, **10**, 796
—— Walters, Waltman, and Counseller, V. S. (1935). *J. Urol.*, **33**, 400.
Duplay, Simon (1886). Ashhurst, *Int. En. of Surg*, **6**, 488.
Edmunds, Arthur (1926). *Lancet*, **1**, 323.
Esser, J. F. (1917). *Ann. Surg.*, **65**, 307.
Mayo, C. H. (1901). *J. Amer. med. Ass.*, **36**, 1157.
Nové-Josserand, G. (1914). *J. d'Urol. Méd. Chir.*, Paris, **5**, 393.
Ombrédanne, L. (1923). *Précis Clinique et Opératoire de Chirurgie Infantile*. Paris, Masson et Cie, p. 654.
Rochet (1932). Quoted from *Practice of Surgery*, Dean Lewis, **9**, Chap. 22, p. 12.

The new nurses' home at St. Charles's Hospital, Ladbroke Grove, Kensington, was opened by the chairman of the London County Council, Lord Snell, on Friday, February 12. It was in 1934 that the Council decided to provide a new nurses' home and quarters for five assistant medical officers, the matron, and the assistant matron. The building also contains a training school for nurses. The total cost of the new home and of the new accommodation for the assistant medical officers, matron, and assistant matron is about £38,425. St. Charles's Hospital was erected about 1881, and since its transfer to the L.C.C. on April 1, 1930, it has been "appropriated"—that is, taken out of the scope of the Poor Law, and is available to all residents in the County of London.

LARGE RENAL CALCULI

BY

D. J. HARRIES, M.D., D.Sc., F.R.C.S.

Surgeon, Cardiff Royal Infirmary

(WITH SPECIAL PLATE)

Unilateral renal calculus of enormous size has been encountered on several occasions, as may be seen from a perusal of the tables given below. In Bradley's case (1909) the stone actually weighed 52 oz. and in Waterworth's (1932) 38 oz. In Morrison's two cases (1921) the weights are recorded with the remains of the kidney substance, so that only approximate figures can be given for the actual weight of the stones.

Large bilateral calculi are much rarer, the largest recorded being Gee's (1874), in which the right stone weighed 36¼ oz. and the left 9¼ oz. Next comes the present case, in which the right weighed 24 oz. and the left 9 oz. Two other cases have been recorded in which the right weighed 5 oz. and the left 4 oz. in each instance. It is almost incredible that renal calculi can grow to such dimensions without causing severe symptoms. In my case the man had been aware of a "lump" in his right side for the greater part of a year, but it had hardly troubled him until a fortnight before admission into hospital. Even then it was only the onset of a perinephric abscess which made him seek medical advice.

It is easy to understand why bilateral cases are much rarer than unilateral ones. In the latter the healthy kidney is able to carry out the necessary renal function, whereas in the former the gradual destruction of both kidneys is bound to produce symptoms of renal failure at an earlier date, even if no complications supervene.

Case History

A male, aged 52, was admitted on July 1, 1935, to Llandough Hospital. The patient had noticed a lump in the right side of the abdomen nine months before. The swelling grew gradually bigger, although it caused him no discomfort until a fortnight before admission, when he started having pain in the right side of the abdomen and in the back. The pain was of a dull, aching character, with no suggestion of acute renal colic. He had lost about 2 st. in weight during the last seven months. So far as he knew there had been no blood in the urine at any time.

The general condition on admission was moderately good; his temperature was 99° F., pulse rate 70. The specific gravity of the urine was 1008, with slight albumin, no sugar, no blood, and some pus. Examination of the abdomen showed a large tumour filling the right loin and extending as far as the middle line. The tumour was hard, with cystic areas in which fluctuation could be made out. There was no area of resonance in front of the tumour. The left kidney was palpable and definitely enlarged. At this stage the condition was suspected of being either a neoplasm of the right kidney, with hypertrophy of the left, or polycystic disease of both kidneys. On July 5 the abdomen was *x*-rayed and the condition shown in the first film found (Fig. 1, Special Plate). This film gives a good idea of the size and density of the stone in each kidney. At this stage the diagnosis was clear, and the right kidney was considered to be in a pyonephrotic condition, thus accounting for the cystic areas felt on palpation.

On July 6 the blood urea was 40 mg. per 100 c.cm. On July 11 a cystoscopic examination was carried out; the bladder showed several tiny stones and one projecting from the right ureter; this was dislodged into the bladder; the left ureteric orifice was normal. Indigo-carmine was then injected intravenously and in thirteen minutes the dye appeared from the left ureter, but none appeared after thirty-five minutes from the right; pressure on the loin tumour caused no discharge from this ureter.

Operation and Necropsy

On July 16 the abdomen was opened under general anaesthesia through a right paramedian incision. The ascending colon was found displaced well inwards by the tumour. After packing off the intestines the peritoneum was incised vertically and a collection of pus found in the perirenal tissues. The stretched kidney was incised along the outer border and about a pint of pus escaped. The stone was then removed almost intact. As there seemed to be a considerable amount of kidney tissue present it was decided to preserve it. A drain was inserted into the perirenal space and the end brought out through an extraperitoneal stab incision in the loin. The peritoneum over the kidney was then sutured and the abdomen closed. The patient made good progress after the operation, secreting about forty ounces of urine daily. The specific gravity remained between 1008 and 1012, and there was a trace of pus present. The loin drained pus for a week.

The patient's condition was satisfactory on July 26 and he was told that he would be discharged within a week, and was asked to make arrangements to return in about a month for removal of the stone in the other kidney. On July 28 he died suddenly. Unfortunately a complete post-mortem examination was not obtained, but the relatives gave permission for the abdomen to be investigated through the abdominal incision. The photographs give a very good idea of the state of the kidneys when removed from the body. (Figs. 2 and 3, Special Plate.)

The stone in the right kidney weighed 1½ lb. before drying and 1 lb. 6 oz. after drying. (Fig. 4, Special Plate.) The weight of the left stone and kidney after hardening for mounting was 13½ oz. It was decided not to damage the specimen by removing the stone, but to expose it by incision along the convex side. If we assume that the weight of the kidney substance does not differ much from that of the normal kidney—namely, 4½ oz.—the weight of this stone is about 9 oz.

Bilateral and Unilateral Calculi

The following tables give some idea of the size that renal stones can reach.

TABLE I.—*Bilateral Stones*

	Sex	Ante- or post-mortem	Weight
Gee (1874), *Med.-Chir. Trans.*, **57**, 77	M.	P.M.	R, 36¼ oz. L, 9¼ oz.
Present case...	M.	A.M. P.M.	R, 24 oz. L, 9 oz.

TABLE II.—*Unilateral Stones*

	Sex	Ante- or post-mortem	Weight
Sheild (1904), *Lancet*, **2**, 1074 (weighed after drying)	M.	A.M.	19½ oz.
Barrow (1908), *Ann. Surg.*, **48**, 1028	M.	A.M.	16½ oz.
Bradley (1909), *Dtsch. med. Wschr.*, **35**, 2090	?	?	52 oz.
Morrison (1921), *British Medical Journal*, **2**, 653	Case 1 M.	A.M.	40 oz.
Weight (with remains of kidney) ...	Case 2 ?	A.M.	35 oz.
Ward (1923), ibid., **2**, 563	M.	A.M.	19½ oz.
Kreutzmann (1929), *Amer. J. Surg.*, **5**, 360	M.	A.M.	23 oz.
Moia (1931), *Rev. de Espec.*, **6**, 439	M.	P.M.	32 oz.
(After 4 months' dry preservation)...			27 oz.
Makar (1931), *J. Egypt. med. Assoc.*, **14**, 355	M.	A.M.	28 oz.
Waterworth (1932), *J. Urol.*, **28**, 77 ...	M.	A.M.	38 oz.
Sexton (1933), *Urol. cutan. Rev.*, **37**, 610 (2 stones)	M.	P.M.	28 oz.
Everett 1934), *British Medical Journal*, **1**, 1027	F.	P.M.	22 oz.
Ewell 1934), *J. Urol.*, **31**, 487	F.	P.M.	20½ oz.

Several other cases have been recorded of unilateral stones weighing under a pound, the majority being somewhere between 8 and 14 oz. Two bilateral cases have been recorded; in each the stone in the right kidney weighed 5 oz. and in the left 4 oz.

A piece of the stone from the right kidney was analysed and was found to consist of calcium phosphate, calcium carbonate, ammonio-magnesium phosphate, and some organic matter. It did not contain any urates, uric acid, oxalates, cystine, or xanthine.

I am indebted to Dr. Garfield Evans for the *x*-ray picture (Fig. 1); to Mr. R. H. Lindley for the photographs (Figs. 2, 3, and 4); to Mr. W. H. Dunstan for analysing the stone; and to the Librarian of the Royal Society of Medicine for the tables of bilateral and unilateral stones. The specimens which I have described are now in the museum of the Royal College of Surgeons of England.

Clinical Memoranda

Cerebral Congestion as an Aetiological Factor in Epilepsy

A considerable number of cases presenting some of the rarer aetiological factors in the causation of epilepsy have been recorded in the literature recently, and in consequence I think that the following case may be of sufficient interest to merit notice.

On June 4, 1936, I saw in consultation a painter and decorator, aged 49, who was suffering from epilepsy. During that day he had had ten major attacks in succession without recovering consciousness in the intervals. The first instance of grand mal had occurred fourteen days previously, and he was given prominal. Four similar attacks were recorded during the intervening two weeks. It was noted that in 1919 for about twelve months he had complained of numerous momentary attacks of hemianopia, and had noticed a considerable number of periods of amnesia of very short duration. In other respects the previous medical history was uneventful, with the exception that, particularly during 1935, he had been overworking and had experienced considerable financial worry, and in consequence had suffered from a degree of insomnia during that period.

I saw him twenty minutes after an attack. He was then unconscious with stertorous breathing and his face and neck were deeply cyanosed and congested. The face gave the impression of being somewhat unduly puffy; it was interesting to note that this appearance had been noticed occasionally during the previous few days, and apart from any attack, by both the patient's wife and his doctor. He was a strongly built man; the pulse rate was 80 per minute, the temperature normal, and the blood pressure was 126/90. He showed no signs of gross organic disease. The optic disks, pupils, and motor and reflex functions were normal. The heart was not enlarged, the sounds were regular and clear, and there was no evidence of arterial degeneration in the superficial vessels. No abnormality was found on examination of the lungs. The urine was free from albumin and sugar. Morphine was administered hypodermically, but before I left the house two further major attacks with typical motor phenomena occurred, accompanied by incontinence of urine.

The patient was transferred to Leicester Royal Infirmary. Twenty grains of potassium bromide with 30 grains of chloral hydrate were given as soon as he was able to swallow, and since no further attacks occurred this was repeated twice daily. His condition gradually improved, and by June 8 he had apparently recovered and felt quite well. Accordingly the chloral was omitted, but the bromide was continued in the same dose. Meantime the blood urea had been estimated and was found to be 37 mg. per 100 c.cm. of blood. The urine was consistently free from albumin and sugar; it contained no pus, blood, or casts, and urine cultures were negative. Blood examination revealed: 4,916,000 red cells per c.mm.; haemoglobin, 87 per cent.; colour index, 0.88; 9,687 white cells per c.mm., with 82 per cent. polymorphs, 8 per cent. lymphocytes, 6 per cent. mononuclears, and 4 per cent. eosinophils. The Wassermann reaction was negative.

On June 9, without any warning and with no aura, he had another fit, followed rapidly by two more; 0.2 gramme luminal was given intramuscularly, and the attacks ceased. The following day lumbar puncture was performed. The cerebro-spinal pressure registered 180 mm. of water. The fluid was clear; there was no coagulum on standing; the chloride figure was 660 mg. per 100 c.cm.; Fehling's reagent was reduced; the protein content was 0.06 per cent.; the cells numbered 2 per c.mm.; the gold curve showed no change; cultures were sterile; and the Wassermann reaction was negative. At this stage a very slight degree of papilloedema was observed for the first time. *X*-ray examination of the skull on June 12 showed some slight perisutural sclerosis, but the sella turcica was normal, and no other abnormalities were detected. Perimetric examination revealed normal fields of vision. On June 13 a slight fit was observed, and it was decided to give 1 grain of luminal by the mouth regularly twice a day. During the next week the patient did not show any change, except that the papilloedema was becoming a little more obvious. There was no vomiting, and the other cranial nerves were intact. In the circumstances, however, he appeared to display rather an undue degree of euphoria, and was excitable and somewhat restless.

On June 20 slight general puffiness and congestion of the face was again observed. By the following day this condition was much more evident and cyanosis of the face was marked. For the first time there was engorgement of the superficial veins of the neck, upper chest, and arms, and a picture of mediastinal pressure was presented. On percussion in the intercapsular area there was a slight but definite broadening of the mediastinal dullness to the right. *X*-ray examination showed an opacity coming out from the right hilar area, and the appearances were consistent with those of a new growth. In addition there appeared to be some collapse of the lower zone of the right lung, with elevation of the corresponding half of the diaphragm. In view of the cerebral symptoms it was decided to obtain pneumoradiographs of the brain; 8 c.cm. of air was injected into the lumbar region, but the films showed no distension, distortion, or displacement of the cerebral ventricles.

Deep *x*-ray treatment of the neoplasm was begun, but was discontinued after two exposures because the patient's condition was rapidly becoming worse. The venous distension and cyanosis increased daily and the oedema of the face and neck progressed to such an extreme degree that the patient was hardly recognizable. The restlessness increased, but was controlled to a certain extent by morphine. He died on July 3. No further epileptic fits had occurred, and it is interesting to note that there had been a complete absence of cough and haemoptysis throughout the illness.

A post-mortem examination was made. The brain showed congestive changes, but a careful search for metastases or other gross lesion met with negative results. The pericardium, myocardium, and cardiac valves were normal. Ante-mortem clot was present in the superior vena cava, which was compressed by the growth. A clear yellow pleural effusion was found on both sides. The left lung appeared normal and aerated. The right lung was adherent on the mesial surface of the upper lobe, where there was a solid mass of growth. The right upper bronchus was constricted by the growth, which had spread to the right side of the mediastinum, forming a solid mass about three inches in diameter. No glandular involvement could be detected by the naked eye. Sections of the growth showed a typical bronchial carcinoma of a small round-cell type, which at one point was observed to be infiltrating a bronchus.

COMMENT

In reviewing this case I am inclined to accept a diagnosis of epilepsy to account for the symptoms which presented

themselves in 1919. The momentary attacks of hemianopia were probably of the nature of visual fits, and the frequent occurrence of the amnesia, as described, would tend to support the supposition. Close interrogation failed to bring to light any epileptic symptom in the interval between that year and the onset of the present illness. At the time of the first examination no factor could be discovered to account for the sudden precipitation of further attacks. Naturally the patient's occupation aroused certain suspicions, but he stated that he had always taken every precaution against the risk of lead poisoning, and this possibility could be further eliminated by the absence of other signs of plumbism.

I had to consider other possible toxic causes, but he had always been moderate in the use of alcohol, and uraemia was ruled out on the biochemical findings. General paralysis of the insane was excluded on clinical examination and the negative Wassermann reaction, together with the absence of change in the cerebro-spinal gold curve. The diagnosis of idiopathic epilepsy was untenable after the discovery of papilloedema, and a definite intracranial factor was indicated when the lung neoplasm so abruptly presented itself. Cerebral tumour was eliminated by all available methods of exclusion and finally by post-mortem search.

I am driven to the conclusion that the generalized epileptiform convulsions were probably due to the widespread cortical venous engorgement and irritability consequent upon the marked obstruction to the blood return from the head, while the limitation in the number of the fits in the later stages of the disease could probably be accounted for by the active anti-epileptic measures taken.

Leicester. RONALD MCD. CAIRNS, M.D.

Acute Idiopathic Intussusception

A rare "acute abdomen" was admitted to the Manchester Royal Infirmary recently. The patient was a man aged 39, a crane operator by trade, and he was sent in as an undiagnosed urgency case.

His history was of five hours' duration, the pain being sudden and acute in onset followed by vomiting one hour later. There were two points of interest in his past history: first, that he had been in the habit of taking pills for constipation (he had taken one just before the onset of the pain); secondly, that a similar attack of pain five days previously had passed off uneventfully. The pain was severe, colicky, and not localized; immediately after the onset a large motion had been passed, followed by absolute constipation. The patient had vomited about three pints of bile-stained fluid.

On examination the patient was cyanosed and very restless, the tongue dry and furred, temperature 96°, and pulse 52. The abdomen moved freely on respiration and was slightly distended; there was voluntary rigidity and a firm, tender, elongated mass high in the right iliac fossa. Per rectum there was extreme tenderness on the right during the colicky spasms, but otherwise nothing abnormal. On these findings a diagnosis of intussusception probably due to early carcinoma caeci was made.

On opening the abdomen an intussusception of ileo-colic type was found, about five feet of gut being involved; reduction was effected without much difficulty, but the most careful examination of the bowel failed to reveal any predisposing lesion; appendicectomy was performed. Uneventful recovery.

My acknowledgements are due to Mr. Wilson H. Hey, for his kind permission to publish this case.

P. J. M. WRIGHT, M.B., B.S.Lond., M.R.C.S., L.R.C.P.
Manchester.

Reviews

THE AIM AND SPIRIT OF NEUROLOGY

Neurological Biographies and Addresses. Foundation Volume. Published for the Staff to Commemorate the Opening of the Montreal Neurological Institute of McGill University. (Pp. 178; illustrated. 12s. 6d. net.) London: H. Milford, Oxford University Press. 1936.

Dr. Wilder Penfield and the staff of the recently opened Montreal Neurological Institute of McGill University have had the happy idea of publishing in a Foundation volume the addresses which were delivered as a part of the opening ceremony of the Institute and biographical sketches of leaders of neurological thought written by members of the Institute's staff. The opening addresses are on "Neurology," by Dr. Gordon Holmes; "Neurosurgery," by Dr. Harvey Cushing; and "The Significance of the Montreal Neurological Institute," by Dr. Wilder Penfield. The series of biographical sketches begins appropriately with Hughlings Jackson and Victor Horsley and ends with Harvey Cushing.

This book will be of interest to neurologists all over the world, primarily as an expression of the spirit and aim of this new neurological institute, which is the most recent addition to a famous medical school. The breadth of its outlook is illustrated alike by the introductory addresses and by the understanding interpretations offered of the work of past masters of neurology. The biographies of neurologists, neuro-surgeons, neuro-physiologists, and histologists indicate the width of the foundations of neurological research both in the past and at the present day, a fact which finds expression in the equipment, both human and material, of the Montreal Neurological Institute. But, as Dr. Holmes emphasizes in his introductory lecture, however wide the foundations must necessarily be it is the physician who is the apex of the structure, for "it is only the physician who can examine the working, whether it be normal or disordered, of the body."

The increasing specialization of modern medicine calls for special methods of organization if the specialist is not to lose touch with his colleagues and if the trees are not to be planted so far apart that they never compose a wood. It is only by gathering together under one roof a group of specialists who are in constant touch with one another's problems that this difficulty can be overcome. Most of the workers whose lives are described in this volume had no such opportunities. They were pioneers working in isolation. If the scientific world of to-day is producing fewer men of this type it is because research, owing to the exigencies of modern science, has now become a communal activity. The recognition of this is the idea which has inspired the creation of the Montreal Neurological Institute and the ideal which finds expression in its Foundation volume.

LESIONS OF THE NAILS

Diseases of the Nails. By V. Pardo-Castello, M.D. (Pp. 178; 94 figures. 16s.) London: Baillière, Tindall and Cox. 1936.

Dr. Pardo-Castello has discovered a more or less untilled corner of the field of dermatology. Before the publication of this volume there was no monograph on the subject in the English language, and the only one of which we are aware was that by Heller, published in Berlin in 1927. Students of dermatological literature will recall that for many years before the publication of his

book Heller was in the habit of recording interesting cases of diseases of the nails in the professional journals, most often in the *Zeitschrift für Dermatologie*, and these observations formed the basis of his well-known work. Dr. Pardo-Castello's volume is on much the same lines. He has collected examples of practically every variety of lesion which affects the nails, and not the least valuable feature of the work consists of the excellent and numerous photographs with which it is illustrated. The pathological changes in the nails lend themselves better than those of other anatomical regions to photographic illustration, since the rendering of colour is quite unimportant as compared with accuracy of form and outline. The author has also drawn attention very properly to the large number of industrial occupations in which diseases of the nails are common, and he has provided a very useful table showing the particular form of symptom and the approximate cause of the lesion in each branch of industry affected. Another and shorter table gives a list of the chief poisons which cause ungual symptoms and the form that these symptoms take.

The treatment of diseases of the nails is notoriously difficult, but Dr. Pardo-Castello has not failed to give all those methods which may be of service. He has produced a very interesting volume, which deserves study by all dermatologists.

HEALTH PROBLEMS

Nature Hits Back. By Macpherson Lawrie. (Pp. 180. 5s. net.) London: Methuen and Co. 1936.

Under a not very happily chosen title Dr. Macpherson Lawrie has written a book to guide the layman (and, incidentally, medical practitioners too) in the consideration of a number of the most important health problems of to-day. Many such books are either commonplace or faddist: some are so over-simplified as to be misleading or so unpractical as to be useless. Dr. Lawrie's book is exceptional; none of these epithets can properly be applied to it. The author has a definite point of view, and a very clear and suggestive outlook. He regards the health of the man in the street as more important than that of the patient in the hospital. He does not, however, minimize the importance of the latter, and he admits that there are many exceptions to his generalizations about the former. Thus, subject to these necessary and sensible provisos, his chapters on nervous fatigue and moods of fear and depression, on food and nutrition, on the glands of internal secretion, on child guidance and upbringing, and on sex are not isolated and independent essays, but are connected by a common idea, and by the underlying purpose of placing these subjects in due relation to each other and in what the author regards as a proper perspective with regard to other problems of health and disease.

The medical reader will probably find some of Dr. Lawrie's pronouncements a little over-emphasized, and a little too dogmatic or unqualified; but faults of this kind are apt to prove virtues when the intention is to impress fundamental points or truths upon the uninstructed and to lead to a practical application of observations and precepts to human behaviour. The enormous importance to-day of early attention to what are regarded usually as minor mental disturbances while avoiding a too exclusive psychological outlook; the interdependence of problems of nutrition and those of mental make-up, personality, and character; the need for a revised and balanced consideration of the training of children, of adolescence, of sex, marriage, and birth control, are particular problems with which Dr. Lawrie deals. To all of them he gives a fresh, consistent, and helpful exposition in a book which can be commended with unusual confidence to the attention of the reading public and to those medical practitioners who wish to know what their patients may be thinking about such matters or to refer them to suitable literature so that they may be encouraged to think and act aright.

PHYSIOLOGY AT THE BEDSIDE

Physiological Principles in Treatment. By Sir Walter Langdon-Brown, M.A., M.D., Hon. D.Sc., F.R.C.P., and Reginald Hilton, M.A., M.D., F.R.C.P. Seventh edition. (Pp. 308. 10s. 6d.) London: Baillière, Tindall and Cox. 1936.

This book has proved its usefulness in successive editions since the first publication in 1908. Written with the object of bringing to the mind of advanced students and practitioners those facts of physiology which can be applied in the care and management of their patients it made a popular appeal. That much change in physiology and in medicine has occurred in the last quarter of a century is evident; the centre of gravity of medical and scientific problems has altered, so that in the new seventh edition large portions of the book have been rewritten, and by rearrangement a clear description of the present-day position is obtained. In short and fitting words the authors—for Sir Walter Langdon-Brown has again had the assistance of Dr. R. Hilton—traverse the main paths of modern physiology and seek to apply the knowledge to clinical work. Even in the six years since the last edition considerable advances have been made in the domain of endocrine glands—a subject after Sir Walter's own heart—vitamins, and the relation of the liver to purine metabolism. Other chapters on digestion, heart disease, the kidney, the blood, and allergic diseases have been brought up to date. In the preface to the first edition the author was uncertain of his physiological views, but with the years his experience and judgement have given assurance. This is a useful handbook. It contains a short bibliography of references for further reading. On page 251 and page 255 the well-known Price-Jones curves are attributed to Pryce-Jones.

COMPARATIVE ODONTOLOGY

Variations and Diseases of the Teeth of Animals. By Sir Frank Colyer, K.B.E., LL.D., F.R.C.S. (Pp. 750; 1.007 figures. 42s. net.) London: John Bale, Sons and Danielsson. 1936.

In the autumn of 1930 Sir Frank Colyer delivered for the Dental Board of the United Kingdom four lectures on "Abnormal conditions of the teeth of animals in their relationship to similar conditions in man." In the present volume a fuller account of these conditions is given, with additional chapters on "Variations of the teeth in number and shape," "Abnormal eruption of teeth," "Overgrowth of teeth," and "Odontomes."

In gathering material for his work the author has examined the collections of animal skulls in most of the museums of Europe and America, as well as the collections in public and private museums of Great Britain. The help everywhere so willingly given (and duly acknowledged in the preface) is good evidence of the interest the work has aroused among zoologists. Indeed, so far as we know, no comprehensive survey of the subject had hitherto been attempted. It needed a man of knowledge, leisure, and infinite patience to collect the data and co-ordinate their details. For many years, both before and since his retirement from practice, Sir Frank Colyer has been curator of the Odontological Museum of the Royal

College of Surgeons of England, and to those who know the work he has done there it seems only natural that he should shoulder the burden, and equally natural that he should bring it to an excellent conclusion. The general summaries with which the author closes each of the two main portions of the book call for special mention. They show both the great value of his work and the wide field there is for further research. From the chapter on injuries of the jaw we learn that, comparably with what is observed in man, fractures of the maxilla in lower animals are apt to heal without bony union. From the chapter on caries we learn that dental decay, though rare, is not unknown in dogs, and that Sir Frank Colyer has found no support for the contention that immunity to dental caries depends on any peculiarity of the structure of the teeth. The note on the tendency to dental variation of *Erythrocebus* may be quoted as an illustration of the philosophic tone of the book, and that on the multiple tusks of elephants as illustrating the author's "clinical" acumen. There is but one point on which we differ from the author—we do not think that tartar on the external aspects of the mandibular incisors of the human being is always associated with mouth-breathing.

We may be excused for calling this book monumental. Those who generously lent their aid, and the publishers, too, are to be congratulated in helping to so excellent a finish.

DISEASES ASSOCIATED WITH PREGNANCY

Maladies des Femmes Enceintes. By Henri Vignes. Two volumes. Vol. I. Pp. 318; 34 figures. 40 fr. Vol. II. Pp. 206. 25 fr.). Paris: Masson et Cie.

Professor Henri Vignes, with the collaboration of Drs. G. Lauret, J. Olivier, and P. Olivier-Pallud, has published two volumes on this subject. The first deals with affections of the alimentary tract and the second with those of the liver, gall-bladder, pancreas, abdominal parieties, and peritoneum, together with diseases associated with malnutrition. In his illuminating preface to the first volume the author points out that diseases associated with pregnancy *ne sont pas criées ex nihilo*, but that tares, previously unsuspected, ripen as the result of pregnancy. Some physicians do not like the conception of coexistences and attribute the diseases to the pregnancy, while others consider pregnancy to be purely physiological and therefore having no causal association with disease. In the author's view the truth lies between these two extremes. Certain affections can be attributed to mechanical factors, others to disturbances of the metabolism comparable with those of adolescence and those associated with frequent haemorrhages, and with inanition. Professor Vignes is not attracted to those views which suggest that these affections may be attributed to the fact that the foetus or the placenta floods the maternal system with abnormal lysins or proteins, for he is in agreement with Bar that "*la grossesse est une symbiose harmonique homogène.*"

Perhaps the best way of indicating the scope of this work would be to mention the subjects discussed in volume I. The first ten chapters deal with diseases of the mouth, the teeth, the pharynx, and oesophagus; the physiological changes in the stomach and disturbances of appetite, vomiting, dyspepsia, gastric ulcer, cancer of the stomach, and Krukenberg's tumours. The remaining ten chapters are concerned with the small and large intestines, and discuss physiological changes in the intestine, constipation, diarrhoea, colitis, worms and intestinal parasites, typhoid fever, cholera, dysentery, appendicitis, intestinal obstruction, and diseases of the rectum. Further, to give an idea of the manner in which these matters are studied the subjects discussed in the first chapter, on diseases of the mouth, will be quoted: physiological changes in the mouth and the salivary glands, ptyalism, stomatitis, gingivitis, pyorrhoea, epulis, paraesthesiae, inflammation of the parotid glands, and mumps. If this rather dull catalogue, necessitated by the unusual scope of the volumes, makes poor reading, the chapters themselves are fascinating. It is amazing not only that one man could write authoritatively over such a wide field, but that such a wealth of information could be confined in so narrow a space. It is probable that only a logical French mind, aided by that most admirable of languages for terse and succinct phraseology, could have accomplished such a feat. Nowhere is this faculty for compression more evident than in the section dealing with typhoid fever.

We look forward with keen anticipation to the further volumes promised by the author. Those already published are not suitable for examination purposes, but present, without being ponderous, a wealth of information to obstetricians, which, so far as we are aware, is not readily available elsewhere.

Notes on Books

Under the title *Die Diat- und Insulinbehandlung der Zuckerkrankheit* (Vienna, J. Springer, RM. 4.80) another small book by Dr. FRANZ DEPISCH has appeared on diet and insulin treatment in diabetes. It is written for students and practitioners, and is very thorough and interesting in its treatment of theoretical aspects. Practical details are insufficiently represented to help the practitioner. Indeed, the latter is so thoroughly warned of the difficulties of treatment that he will hand the severe patient over to institutional treatment as soon as possible after reading this book.

For a second year Dr. ROBERT BROCA and Dr. JULIEN MARIE have produced a survey of recent advances in French Paediatrics under the title *L'Année Pédiatrique* (Paris, Masson, 32 fr.). This consists of a series of sixteen monographs, for which the authors have been mainly responsible with the collaboration of six colleagues in the whole or part of certain sections. The result is a useful selection of topics, by no means covering the field and of varying degrees of merit. The first essay, on the modes of onset of tuberculosis in the child, is one of the best in the volume.

The appearance of a second edition of Dr. W. R. AYKROYD'S fascinating book on *Vitamins and Other Dietary Essentials* (Heinemann, 7s. 6d.) is to be welcomed. The subject of nutrition is more and more engaging the attention of the educated public, and the medical practitioner must now be able not only to prescribe diets for certain illnesses, but be able to translate into everyday language what factors are required for the perfect diet in reply to the queries of his more educated patients. Aykroyd's book is ideally fitted for imparting this knowledge either to laymen or to doctors. In the most delightful style he recounts the fascinating story of the discovery of vitamins and other dietary essentials, with illustrations of their practical application in various parts of the world. Some of the chapters, notably those on beri-beri and pellagra, read like a novel and yet are fully correct in fact. In the preface to the second edition he states that he has not made many alterations, but that if he were now rewriting the book he would adopt a more optimistic attitude towards the subject of malnutrition, owing to the fact that there has been a general awakening of the public conscience to its importance. The existence of such a book will contribute to this highly desirable awakening.

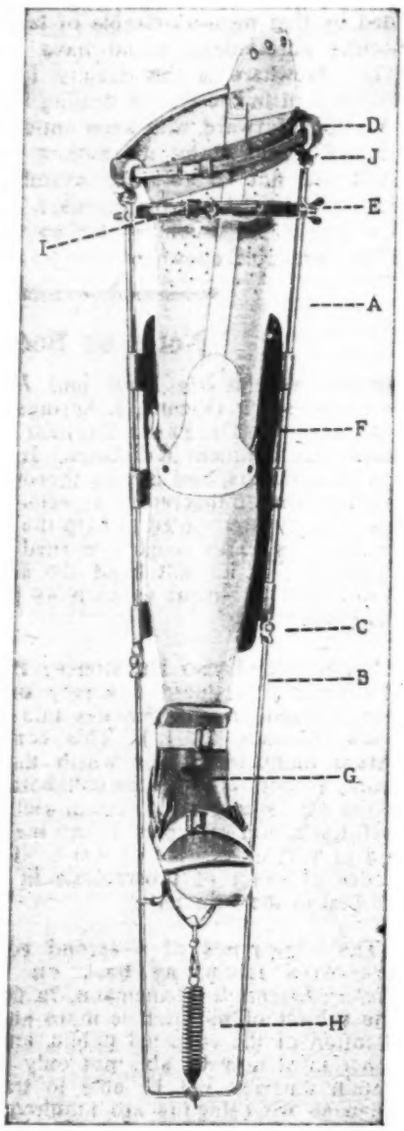
Preparations and Appliances

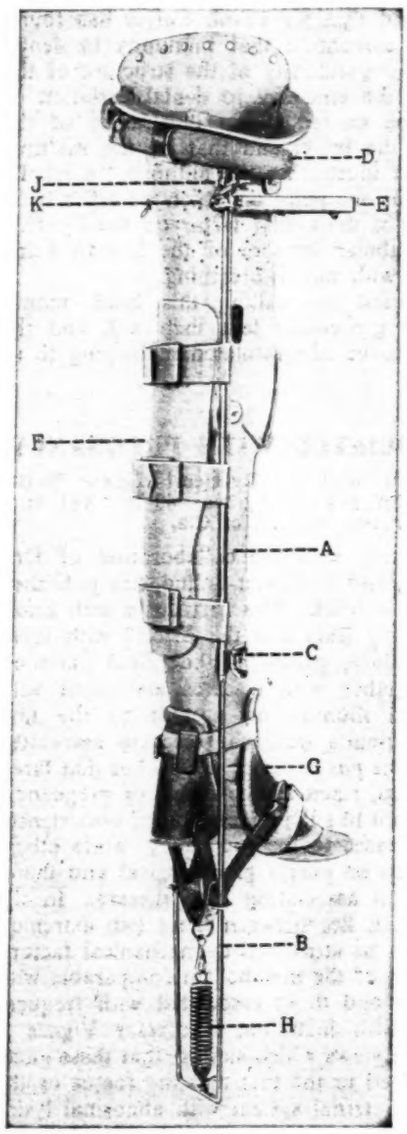
UNIVERSAL FRACTURE SPLINT

Mr. K. H. PRIDIE (Clifton, Bristol) writes:

Fracture work is now being collected to fracture clinics where there are adequate facilities for the treatment of all types of cases, and cases are being transferred from smaller hospitals to these clinics. Many patients have to travel considerable distances, and for these some form of efficient splint is urgently needed. For this reason I am describing the universal fracture splint, which has been designed for me by M. Masters and Sons, Ltd., London. The splint was primarily designed for the first-aid treatment of fractures; it is completely adjustable for child or adult, and will fit any size of thigh or length of leg. It is therefore especially useful for ambulance service, ships, and small hospitals where a large assortment of splints cannot be kept.

Although designed as a first-aid splint there are many cases where it can be used with advantage for treatment in hospital. For example: (1) for cases of fractured femur; (2) for cases of pathological fractures which need deep *x*-ray treatment, as the patient can be moved from the ward to the *x*-ray department without fear of displacing the fracture. During treatment it can be easily dismantled to allow the particular part to be irradiated.





Description of Splint.—The splint is a modification of the Thomas knee-splint, and is adjustable for length. Instead of a circular ring at the top there are two divided segments, each one-third of a circle. These are kept in position by means of an adjustable spacer. The upper ring of this splint will expand to fit any circumference of thigh and will remain in position when the spacer is clamped. Traction for first-aid purposes is obtained by means of a spat which fits over the shoe or boot. This is attached by a spring to the end of the splint, and by elongating the splint the required traction can be obtained. The adjustable tray supports the leg. The figures show the splint attached to an artificial leg.

Details Shown in Figures.—A = Main expansion bar, which is hollow to allow tube B to slide in. This makes the splint adjustable in length and is controlled by the lock nut at C. D = The upper ring of the splint. The angle of the segments of the ring can be varied by means of the screw at J. E = The spacer, which can be removed to apply the splint by undoing the nuts K. It is adjustable in width by slide at L. F = Adjustable back tray. G = Spat for use as a first-aid splint over shoe or boot. It is attached to the spring H at the end of the splint. H = Spring attached at one end to strap from spat and at the other to the lower bar of the splint.

Directions for Fitting Splint.—Remove adjustable spacer marked E, on one side only, by undoing the nut at K. The spacer can then be removed from tube A and swung outwards. Undo the strap of the top ring and also the two lock nuts at C and the splint will become flat and can be slid under the leg. The inner segment of the top ring marked D is adjusted to fit the crease of the buttock and to fit under the tuber ischii. The strap of the top ring is tightened until it is a loose fit and the spacer E is then swung into position and re-attached to the tube marked A. The spat G is then applied over the shoe, the wing nuts at C are undone, and the tube B pulled from the tube A until the required traction is produced. The wing nuts C are finally tightened. The top ring D will then assume its correct position in relation to the groin.

For transportation a bandage is applied round the whole splint and limb.

IODIZED OIL

Iodatol (B.D.H.) is a British-made iodized oil issued for use in radiological diagnosis and in iodine therapy. The specifications of the *B.P. Addendum, 1936,* for iodized oil state it to be an iodine addition product of poppy-seed oil containing 39 to 41 per cent. of combined iodine, and "iodatol" conforms with this specification. British Drug Houses Ltd. (Graham Street, City Road, N.1) have issued a well-illustrated pamphlet showing radiographs of the bronchi obtained with "iodatol," and the text gives a full description of its mode of administration. Samples will be sent to medical practitioners on request.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY FEBRUARY 20 1937

WHEN IS ABORTION LAWFUL?

Medical practitioners in general and gynaecologists in particular have constantly at the back of their minds a doubt which from time to time becomes acute. That doubt is: Can an operation to terminate pregnancy ever be lawful? It is not pleasant for a doctor to feel that in the course of practice he may, with perfectly honest intentions, commit a serious offence. The trouble comes, like many others, from the nebulous state of a good deal of our law. It has from time immemorial been an offence against the laws of the Church and of the land to cause a woman to miscarry, and the principle is embodied in the Offences Against the Person Act, 1861, Section 58. This section prohibits a woman with child from procuring abortion on herself, and then lays down that "whosoever shall unlawfully supply or procure any poison or noxious thing, or any instrument or thing whatsoever, knowing that the same is to be unlawfully used or employed with intent to procure miscarriage of any woman, whether she be or be not with child, shall be guilty of a misdemeanour, and being convicted thereof shall be liable to be kept in penal servitude"—for life. As far as the professional abortionist, qualified or unqualified, is concerned this section presents no difficulties. To the law-abiding practitioner the crux of the matter is the word "unlawful." This word is nowhere defined in the Act, and since the case of R. *v.* Bliss,[1] [2] in which a qualified woman doctor was sent to penal servitude for three years for unlawfully procuring abortion and had her name erased from the *Medical Register*, medical men and women have been asking themselves whether, in emptying the uterus for reasons which have seemed good to them in the patient's interest, they have made themselves liable to a similar punishment. The letter over the signatures of three practitioners in Kenya, published in our correspondence columns this week, may express a general uneasiness.

Research into the legal authorities ends as soon as it begins. The reports contain no case in which the question has ever been dealt with by a judge, even in passing. There is, however, a crumb of comfort in the section itself. By an ordinary rule of interpretation the lawyer assumes that when the legislature prohibits citizens from doing an act unlawfully it must have in mind a lawful way of doing the same act, for otherwise it would have been idle to use the word "unlawfully." This view was expressed by Mr. Justice Salter in a discussion on criminal abortion held by the Medico-Legal Society in 1927 and reported in this *Journal*. Taylor[3] quotes an opinion given by counsel to the Royal College of Physicians in 1896, which goes a good deal farther: "We are of opinion that the law does not forbid the procurement of abortion during pregnancy or the destruction of the child during labour where such procurement or destruction is necessary to save the mother's life." *Russell on Crime*[4] goes farther still, and says: "The word 'unlawfully' excludes from the section acts done in the course of proper treatment in the interest of the life or health of the mother." As the original author of this work is dead this passage may be cited in court as an authority, and would doubtless be treated with great respect. Taylor, developing the subject, takes a conservative view, and says that it is obvious that the only reasons justifying the induction of labour are to save the life of the mother or to save the life of the child. The learned author quotes the opinions of various eminent gynaecologists who spoke at a discussion held during the Annual Meeting of the British Medical Association in 1926 in the Section of Obstetrics and Gynaecology, and says that the majority of the Section seemed to agree that abortion should be advised only for some definite morbid condition such as tuberculosis, chronic nephritis, heart disease, and certain others; that no one of these diseases could be looked upon as a reason for always terminating pregnancy, but in a particular case any one of them might render abortion necessary. The indications for therapeutic abortion have often been discussed by the heads of the medical profession, and are not a subject of much controversy; they can be found in every good textbook of obstetrics and gynaecology.

This very absence of legal authority may reassure the law-abiding doctor, for it indicates that law-abiding doctors never are put in peril for terminating pregnancy on recognized medical grounds. It is a matter of common knowledge that the profession contains a few members who choose to run the risk of prosecution and who terminate pregnancy without good medical reasons; yet the prosecution of one of them excites intense and widespread interest, simply because the prosecution of a reputable registered practitioner for this offence is

[1] *British Medical Journal*, 1936, **2**, 16.
[2] *Times*, July 1, 1936.
[3] *Medical Jurisprudence*, ninth edition, vol. 2, p. 140.
[4] Ninth edition, vol. 1, p. 517.

extremely rare. Broadly speaking, an abortionist only comes to the notice of the police for one of two reasons: his patient dies or gives information. Except for the very rare cases of death from shock of the mysterious kind so ably described by Sir Bernard Spilsbury[5] the qualified abortionist hardly ever loses a patient, for he knows how to avoid sepsis and haemorrhage. Mrs. Bliss came to grief because some of her patients informed against her. The law-abiding practitioner who follows Taylor's advice to get a second opinion and the written consent of the woman and her husband or guardian, and who only terminates pregnancy to avert genuine danger to life or health, is not likely ever to have his action called in question. In practice the police are very cautious in prosecuting even flagrant and persistent abortionists; they would not move in a case where the defence would rest on proper medical indication. It is doubtful whether the authorities ever consider a prosecution which would rest on the legal interpretation of the word "unlawful" in the statute. Practically all abortion trials are decided by evidence of fact, and the issue is whether the accused did or did not perform an abortion. The illegality of the operation is never in issue. In the Bliss case the accused, it is true, said she only performed the operation on women who were already suffering from an attempt at abortion, but she was found guilty, not because this was an insufficient defence, but because the jury did not believe her. There is no real doubt, either in law or in practice, that a doctor who empties the uterus of a patient who comes to him "bleeding, possibly septic," from an attempt to procure abortion is running no risk whatever. A medical man need have no fear of being convicted, or even accused, on a legal technicality if he terminates a pregnancy with the honest intention of averting damage to health and life. If he widens the indications to include speculative grounds he will lose the support of the consensus of his professional brethren. If he empties a gravid uterus merely because the woman does not want to bear the child he acts at his peril.

[5] *Med.-leg. criminol. Rev.*, 1934, 2, 1.

HOSPITAL CO-OPERATION IN LONDON

A section of the Local Government Act, 1929, laid it down that local authorities when providing hospital accommodation should consult a committee representing both the governing bodies and the medical and surgical staffs of the voluntary hospitals of the area. It was a narrow field of co-operation, and in some areas, though not in London, it has been narrowly construed. The British Medical Association has maintained that in order to get any satisfactory scheme of co-ordination there must be more than mere consultation, and that both sides must get together to set up a body which would devise means for bringing into line the admission of patients as between the various hospitals as well as advise on the development of new accommodation. The Voluntary Hospitals Committee of the County of London, which was constituted in July, 1935, by the amalgamation of the London Voluntary Hospitals Committee and the London Regional Committee of the British Hospitals Association, has issued a report of its activities covering the last eighteen months. The committee represents the twelve hospitals with undergraduate schools, twenty-nine general hospitals without schools, including three by special arrangement outside the county, and sixty-six special hospitals. It has been recognized by the London County Council and the King Edward's Hospital Fund as representative of the voluntary hospitals, and its contacts with the L.C.C. have not been limited to the question of accommodation, but have ranged from exchange of information about extensions of services down to rates of pay of miscellaneous staff. The committee suggested regular meetings with the Hospitals and Medical Services Committee of the Council for the general discussion of hospital policy, but this idea was apparently too radical, and conferences between the two bodies are only called when definite questions arise. With regard to King Edward's Hospital Fund, an arrangement has been concluded whereby in future every voluntary hospital in the county before submitting to the Fund any important scheme of extension or reconstruction will be asked to ascertain the views of the Voluntary Hospitals Committee. Liaison has also been established with the Ministry of Health, which will consult the committee on all matters, including those relating to medical education, in which the voluntary hospitals of the county are largely affected by any of the Ministry's proposals. The committee has participated in the work of a larger body, representing other interests, in discussing with the London County Council the scheme which the Council is devising for a salaried service of midwives under the new Act.

One useful piece of work now under consideration by the committee is the proposal for the provision of a central office—a sort of clearing-house—to facilitate the admission to voluntary hospitals of emergency and acute cases. It is the common experience of a medical practitioner in urgent need of a bed for a patient to have to telephone to a number of hospitals before he can find one which is able to receive the case. Such a central office.

if it could be established, would inform him forthwith where to send his patient and would warn the hospital of the impending arrival. Thus the doctor's time and energy, and perhaps his temper, would be saved and the patient's anxiety relieved. Sixty-one hospitals have expressed a willingness to co-operate in such a proposal, and three have expressed dissent. Like many schemes which seem on the face of them so full of common sense and so simple to bring about, it bristles with difficulties as soon as details come to be considered, but a subcommittee is busy upon it, and a scheme will in due course be laid before the constituent hospitals. The interest with which the suggestion has been received is felt to justify a very real endeavour to put it into practical shape. The committee, after touching on various other activities which have engaged its monthly meetings, gives a hint to hospitals in general. Every effort, it says, will be made to ensure that they are not unnecessarily troubled for information, and when they are troubled it is hoped they will respond with as little delay as possible. The chairman of the committee is Mr. O. N. Chadwyck-Healey, the vice-chairman Dr. A. M. H. Gray, and the honorary secretary Professor L. S. Dudgeon.

THE TREATMENT OF BURNS

Had he been alive to-day E. C. Davidson of Detroit, who in 1925 introduced the tannic-acid coagulation treatment of burns, would no doubt be very gratified by the fact that his method has led to standardization of treatment and a considerable reduction in the mortality from burns. He would find a still further source of gratification: nearly half the lethal burns in the United States occur in young children, and in his old clinic at the Children's Hospital at Detroit the tannic-acid treatment has reduced the mortality from 36 to less than 10 per cent.[1] There can be no doubt that the treatment of severe and extensive burns by coagulants such as tannic acid—or by its more recent adjuvants or variants such as silver nitrate and ferric chloride solutions—represents a great advance in surgical therapy. In this country Mitchiner at St. Thomas's has been an ardent advocate of the new treatment. In Edinburgh an investigation has recently been made into toxin formation in burned tissues by Wilson, Jeffrey, Roxburgh, and Stewart.[2] Their problem was to ascertain the nature of the so-called "acute toxaemia" which supervenes after the periods of initial and secondary shock some six to fifty hours after a severe burn. From time to time criticism of the view that this phase is a true toxaemia has been raised on the grounds that there has been no satisfactory evidence for the actual formation of toxins in burned tissues. The Edinburgh investigators, however, have been able to show that the oedema fluid which accumulates in a burned area gradually acquires toxic properties, probably as the result of autolysis of the injured tissue, and that it exerts toxic effects on the nervous and circulatory systems and on the liver cells. It would appear that absorption of toxin from the burned area is the factor responsible for the stage of acute toxaemia, and that it is unnecessary to regard as of primary importance such factors as increased concentration of the blood, early bacillary infection, or changes in blood chemistry: thus is explained the great value of coagulants such as tannic acid in preventing the formation of the toxins at the site of their origin. Tannic acid may, however, be misused, and attention has been drawn to the fact that its application in burns of a minor character may produce unnecessary destruction of epithelium and some delay in healing. It has been suggested, therefore, that the coagulation treatment should be reserved for more severe burns, and that bland wet dressings and ointments may with advantage be used for minor and less extensive cases. The solutions employed for this purpose have been many and varied, from mercurochrome in 2 per cent. concentration to cod-liver oil, advocated so enthusiastically for some time now by Professor Wilhelm Löhr of Magdeburg. A report of a new remedy for the treatment of minor burns, by Mr. Leslie Stewart of Edinburgh, appears in this issue of the *British Medical Journal* (p. 380). He finds that amyl salicylate exerts a valuable analgesic effect and, when blended with a liquid mixture of isomeric methyl tertiary butyl phenols ("abracide"), produces a stable antiseptic preparation which still maintains analgesic properties. Details of technique and of encouraging results will be found in the author's paper. It must be clearly understood that amyl salicylate is not for use in extensive burns for which coagulation is imperative; but for the treatment of minor cases, particularly of scalds, it will no doubt be widely tested.

[1] *New Engl. J. Med.*, 1936, **214**, 306.
[2] *Brit. J. Surg.*, 1937, **24**, 601.

RAT-HUNTING IN HAWAII

Maui is the second largest of the Hawaiian Islands, with an area of 728 square miles and a population of 52,000. Cultivation of the sugar cane is the principal industry, pineapples are also extensively grown, and quantities of cattle are raised in central Maui; there are also numerous chicken farms and smallholdings. The island is served by three ports, but only at Kahului do vessels tie up alongside a wharf. Plague was first reported in Maui in 1900, and was presumably brought there by the inter-island steamer from Honolulu. No further evidence of the disease occurred until 1930, when several deaths were attributed to plague, although the first definite diagnosis was not made until August, 1931. Subsequently there were five cases with four deaths, the last case occurring in September, 1932. During this period fifteen plague-infected rats were found in seven foci, but no further rat infection was discovered until October, 1934, a year after A. L. Dompeyer, sanitary engineer, U.S. Public Health Service, came to the island.[4] At that

[3] *British Medical Journal*, 1925, **2**, 995.
[4] *U.S. Treasury Dep. Pub. H. Rep.* November 6, 1936, **51**, No. 45.

time poisoning was the method in vogue for combating the rats, but owing to the abundance of natural food there was little inducement for them to take the baits, and the numbers were not sensibly diminished. Of the fifteen plague-infected rats twelve were found to belong to the species *Rattus alexandrinus* and *Rattus rattus*. It was inferred that these species probably preyed upon the smaller and more numerous native animal, *Rattus hawaiiensis*, and that the last-named provided the true reservoir of infection. The areas most heavily infested were old pineapple fields and the densely covered gullies, and some of these were accordingly cleared. The burrows could then be located, and as many as 2,300, each containing one to four nests, were found in an acre of cleared land. The native *R. hawaiiensis* far outnumbered the other species. Carbon bisulphide proved to be the best means of treating the burrows. The procedure is to apply a few drops of this substance to each burrow. A lighted match is then thrown down, an explosion follows, and a flame runs through the tunnel system killing the rats within, while the emanation of the yellowish fumes provides a means of locating further connecting burrows. Finally the openings are plugged with earth and well tamped. The clearing and burning of undergrowth, which necessarily preceded these measures, by diminishing natural food supply and exposing rat harbourages facilitated the task of poisoning by bait, while rats were also killed by clubs and any other means available. As a result of this work six plague-infected rats were taken, five of which belonged to the species *R. hawaiiensis*. There were two other important reservoirs of rats. Large numbers of *R. alexandrinus* and *R. rattus* nested, like birds, in the algaroba trees, which produce the rats' food supply in the form of beans. These nests, often containing as many as thirteen rats, were readily brought down with a shot-gun, after access had been gained by clearing and burning the brushwood. Other rats lived in great piles of rock, which were successfully treated with calcium cyanide dust, the rock retaining sufficient moisture to generate the gas. As a result of all these measures of "rat harbourage elimination work" the average daily rat catch was reduced from 8.41 to 0.67 rats per hundred traps in the plague zone districts within a period of thirteen months.

PHYSICAL TRAINING AND RECREATION

In the White Paper on Physical Training and Recreation, of which we gave an account last week (p. 342), the Government announced its intention of appointing a National Advisory Council and a Grants Committee for England and Wales. The council of thirty-one members has now been constituted, with Lord Aberdare as chairman and the Hon. Edward Cadogan as deputy chairman. The medical members are Viscount Dawson of Penn, physician-in-ordinary to the King and Queen Mary, and President of the Royal College of Physicians; and Sir Kaye Le Fleming, Chairman of the Council of the British Medical Association, who was chairman of the B.M.A. Physical Education Committee and represents the Association on the Central Council of Recreative Physical Training. The secretary of the council and of the Grants Committee is Captain L. F. Ellis, who has now retired from the secretaryship of the National Council of Social Service in order to take up this new work. Communications should be addressed to the secretary, Physical Recreation Committees, Queen Anne's Chambers, Tothill Street, S.W.1.

MANDELIC ACID IN URINARY INFECTIONS

The steps leading to the introduction of mandelic acid as a urinary antiseptic by Rosenheim are too well known to require iteration, but the treatment is still new enough for clinical experience and laboratory experiment to be worth recording. The latest articles on the subject have come from America and Australia, where mandelic acid is proving as satisfactory as it has done in Britain. Osterberg and Helmholz[1] record experimental work on the excretion and bactericidal activity of mandelic acid administered as the sodium salt. They find that in doses of 12 grammes a day concentrations amounting to 1 per cent. and more of mandelic acid can be maintained in the urine for many days, and a *p*H of 5.0 or less can be secured by the simultaneous use of ammonium chloride. Such urinary conditions, they show, are bactericidal for most organisms, though they are more effective against *B. coli* or *B. proteus* than against the cocci; the susceptibility of the latter appears to vary. The difficulty with the *B. proteus* is to produce *in vivo* a sufficient urinary acidity, since this organism synthesizes ammonia from urea. These authors also show that there is a slight depression of renal function, as measured by the urea-clearance test, during treatment, but that this is only temporary. A high percentage of cures in *B. coli* infections is recorded by Carroll, Lewis, and Kappel[2] with sodium mandelate, by Cook and Buchtel[3] with various salts (sodium or ammonium or ethanolamine mandelate), and by Dolan[4] with ammonium mandelate; Silverton[5] from Australia reports favourably on the use of strong nitrohydrochloric acid as a urinary acidifier and antiseptic either alone or with mandelic acid salts. There is general agreement that *B. proteus* and coccal infections are more difficult to cure than *B. coli* infections, and that patients should be investigated to exclude gross causes of urinary stasis before treatment. Conditions such as hydronephrosis, calculus, or enlarged prostate must be appropriately treated, but even here mandelic acid will sometimes cure and often alleviate a coexisting urinary infection. No serious untoward effects are reported. Diarrhoea is an occasional result of the treatment, but is rarely severe. Renal insufficiency, if advanced, is a contraindication. Haematuria has sometimes been observed during treatment by ammonium mandelate, but as this may arise in untreated urinary infections we do not yet know whether it is due to the remedy or to the disease. Acidification of the urine occasionally leads to a temporary increase of bladder irritability and

[1] *J. Amer. med. Ass.*, 1936, **107**, 1794.
[2] Ibid., 1936, **107**, 1796.
[3] Ibid., 1936, **107**, 1799.
[4] Ibid., 1936, **107**, 1800.
[5] *Med. J. Austral.*, 1936, **2**, 661.

dysuria. With regard to the prescription and the control of treatment there is also general agreement: 3 grammes of mandelic acid four times daily seems to be efficient dosage for adults. It may be given as the sodium salt, with ammonium chloride or nitrate to render the urine sufficiently acid; or as the ammonium salt, when an independent urinary acidifier is as a rule unnecessary. In some cases an adequate urinary acidity has been obtained only when an acid-ash diet or even a ketogenic diet has been ordered as well. Fluid intake should be limited during treatment. In successful cases sterile urines are obtained in from two days to three weeks. None of the papers herein discussed, however, deals adequately with recurrences. To those in this country with experience of mandelic acid the real problem is the chronic case which, though rapidly responding to treatment, relapses (often with an acute attack) within a few days or weeks. Repeated courses of treatment only result in as many relapses, and a return is eventually made to alkalis or the less efficient antiseptics which can be continued over an indefinite period. Mandelic acid is a new remedy of great efficacy, but it must be given in accordance with the rules laid down by those who have experience of its use.

THE POST OFFICE AND THE CORONER

It is sometimes necessary for the purposes of a coroner's inquest to send pathological specimens by post to the public analyst. Nearly all medico-legal textbooks contain precise directions for the packing of specimens, and on the whole no difficulty is encountered. An unfortunate incident[1] recently occurred, however, in the Isle of Wight which shows how defective packing may bring the coroner's court into conflict with the Post Office authorities. A man of 55 suffered from pains in the back, and his doctor prescribed medicine and liniment for him. One evening, when the bottle was almost finished, the man became violently sick and died in a few hours from acute gastritis. The necropsy gave no clue to the cause, and the Ryde coroner decided that the viscera had better be sent to the public analyst at Southampton. They were therefore packed in two jars, which were wrapped in corrugated paper and placed in a tin box, the remaining space being filled tightly with straw. In a few days the coroner received a message that the parcel had leaked and that the postal officials had destroyed it. At the adjourned inquest the assistant superintendent of the Portsmouth General Post Office, through which the parcel had been sent, said that the Post Office regulations provided that deleterious liquids or substances, though otherwise prohibited from transmission by post, might be sent for medical examination or analysis to a recognized medical laboratory or institute by letter post, and on no account by parcel post. The specimen must be enclosed in a hermetically sealed or otherwise securely closed receptacle, which itself must be enclosed in a strong wooden, leather, or metal case in such a way that it cannot shift about, with a sufficient quantity of absorbent material to prevent leakage. The packet must be conspicuously marked "Fragile with care," and "Pathological specimen." Any packet of the kind not packed and marked as directed must be at once stopped and destroyed. Postal officials have definite instructions that a package likely to cause contamination must be destroyed. The coroner, while not challenging the right of the official to destroy the parcel, commented that the words "Pathological specimen" on the wrapping and the strong smell were a very good reason why it should not have been destroyed. Many laws, he said, exist to protect the Government, but they are not necessarily carried out with arbitrary force. The jury agreed, and expressed the opinion that the parcel should have been set aside for further inquiry. The Post Office witness undertook to transmit this opinion to the central authorities. The inquest was adjourned again in order that the remaining dose of medicine in the bottle might be analysed. It was found to contain 58 grains of aspirin, owing presumably to inadequate shaking at earlier doses. The last dose taken by the deceased might have contained 40 grains of aspirin, but this should not cause fatal gastritis. The jury returned a verdict that the deceased died from acute gastritis and that they were unable to reach a definite conclusion about the cause, as the viscera had been destroyed by Post Office officials in accordance with the regulations. They expressed the opinion that the regulations should be modified so as not to apply to pathological specimens in transit to a public analyst, and that such packages should not be destroyed without a personal inspection and order for destruction by a superior officer of the G.P.O. This must be a very rare accident. The best precaution would probably be to use toughened glass containers, and to label the parcel conspicuously with the name of the coroner's court. If this had been done in the present case the local Post Office authorities might have thought twice about destroying what turned out to be the only evidence which the coroner's court had of the cause of death. It would be better never to entrust such specimens to the post at all but to send them by hand; this, however, may in some cases be impracticable.

[1] *Isle of Wight County Press*, January 23 and 30, 1937.

The Queen has assumed the office of President of the British Red Cross Society under the Royal Charter of the Society. The Duke of Gloucester has become chairman of the council of the Society, taking the place of his brother, who is now King and who becomes Patron of the Society. The Duchess of Gloucester has become a member of the council of the Society.

Sir Henry Brackenbury has accepted an invitation to stand as an Independent candidate for the Combined English Universities at the forthcoming Parliamentary by-election.

We much regret that by a slip of the pen Professor Cathcart's collaborator in *A Dietary Survey in Terms of the Actual Foodstuffs Consumed* was wrongly given in our leading article last week (p. 334). The correct name is Mrs. A. M. T. Murray.

ENDOCRINES IN THEORY AND PRACTICE

This article is one of a series on Endocrinology contributed by invitation

THE CHEMISTRY OF OESTROGENIC COMPOUNDS AND METHODS OF ASSAY

BY

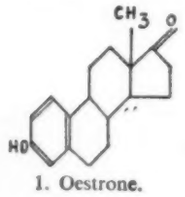
E. C. DODDS, M.V.O., D.Sc., Ph.D., F.R.C.P.

It is difficult to state with certainty which worker obtained the first potent extract of the ovary and of the testis, but there is little difficulty in recognizing the pioneer work from which our present-day exact knowledge has developed.

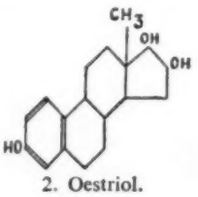
In the case of the ovary the work of Allen and Doisy (1923) can be unhesitatingly quoted as laying the foundation for all the successful work that has been accomplished on this subject. It will be remembered that these workers demonstrated that an active stable substance could be extracted from the ovary which, when injected into castrated rodents, was capable of re-establishing the reproductive or oestrous cycle. Once a stable and uniformly active preparation had been obtained it followed that chemists and biochemists would attempt to discover the actual structure of the active principle. No progress was made, however, in this direction other than to show that it consisted of an organic compound soluble in organic solvents and containing carbon, hydrogen, and oxygen.

Attempts at purification failed owing to the large number of substances of a similar constitution which were extracted together with the hormone. The next step was made by Aschheim and Zondek (1927), when they discovered that the oestrus-producing hormone was excreted in the urine of pregnant animals. It is excreted in a form very suitable for purification, and since relatively enormous quantities are excreted a large supply of starting material was thus provided for the chemist. The usual chain of events in the establishment of the identity of a compound rapidly followed. The substance was crystallized by Doisy (1929) in America and by Butenandt (1929) in Germany independently, and considerable advance was made with regard to its probable structure. It is not proposed to attempt even a summary of the experimental evidence that can be advanced for the constitution of the oestrus-producing hormone, since this is a matter of pure organic chemistry. It was shown by a number of workers that the oestrus-producing hormone is related to the sterols, and it is interesting to note that the constitution of this group of substances had been worked out only a short time before the purification and crystallization of the sex hormones. Unless the structure of the sterols had been discovered no progress would have been made in the work on the constitution of the sex hormones.

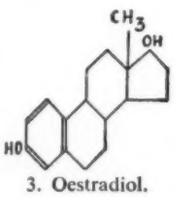
Up to the present five oestrus-producing substances have been isolated from either the ovary, the urine of pregnancy, or the placenta. These substances are:



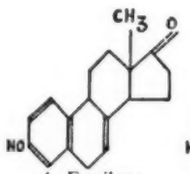
1. Oestrone.



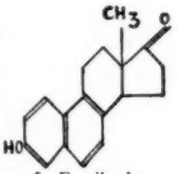
2. Oestriol.



3. Oestradiol.



4. Equilene.



5. Equilenin.

Of these compounds oestrone was the first one to be isolated in crystalline form and was for a considerable time looked upon as being the true hormone of the ovary. By a process of partial hydrogenation it was found possible to convert the ketone group into a hydroxyl group, thereby giving rise to the compound now known as oestradiol. It has been shown that this is some five times as active as oestrone itself, and workers in this field were faced with the rather unusual state of affairs that an artificial substance was apparently more active than the natural one. Later, however, oestradiol itself was isolated from follicular fluid and from the urine of pregnancy, and it is now regarded as being the true hormone of the ovary.

From the clinical standpoint the only compounds which find extensive use to-day are oestrone and oestradiol, and it is interesting to note that oestradiol appears to be assuming major importance in therapeutic use. Equilene and equilenin, though capable of producing oestrus, are not so active and are not available to the clinician.

Standardization

Standardization has presented a great many problems, and despite the successful application by Allen and Doisy (1923) of the vaginal smear method, no thoroughly comparable results were obtained until the crystalline material had been prepared. The process of the method of standardization is to inject subcutaneously a series of castrated rats or mice with the material, and by following the vaginal smear to determine whether oestrus supervenes. Every type of unit has been defined, and until recently complete chaos reigned.

To indicate the difficulties of standardization it must be pointed out that the activity of a given sample, even when in crystalline form, depends upon the vehicle in which it is dissolved and the number of spaced injections which are administered to the animal. By giving an aqueous solution (obtained by diluting an alcoholic solution) in a large number of small doses spread over forty-eight hours it is possible to enhance the activity to a very remarkable extent. Thus a solution which is inactive when injected in one or two doses will be highly active when administered in, say, six smaller doses. Single injections of oily solutions, again, yield quite different results. From this it can be seen that the old terms of "rat unit" and "mouse unit" really mean nothing except to the actual person who has conducted the test. Further, even though the same method of injecting is used, unless a large number of animals are employed for each test the results will not be reproducible.

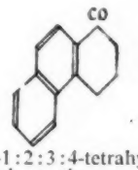
An attempt was made to clear up this situation by the Committee on Hormones of the League of Nations Permanent Health Commission. The committee suggested the adoption of a process well established in

biological assay—namely, that of defining the activity in terms of a standard preparation. This method has worked excellently in the past in the case of hormones such as insulin, oxytocin, etc., and its application to the sex hormones has certainly clarified the issue considerably. At the last meeting of the committee a number of standards were laid down. The international unit for oestrin was given as 0.1 γ. In its use the investigator takes the international standard and finds out the quantity required to produce oestrus in 50 per cent. of ovariectomized rats or mice: he then determines the amount of the unknown preparation required to produce the same response, and by this means a standardization is effected. By this technique the variability of individual animals is overcome, and at the same time a control is obtained on the use of solvents, spacing of injections, etc.

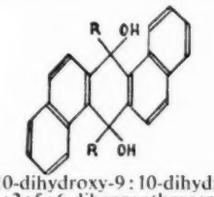
The committee pointed out that since the crystalline pure preparations were becoming more and more easily available the necessity for biological standardization became less and less, and that in time, with accurate chemical characterization, weights of crystalline material and not units should be prescribed.

By far the most important preparations on the market to-day which are employed clinically are the benzoylated derivatives of the hormones. The action of these compounds is much more prolonged and gives rise to more lasting effect. The greater part of the clinical work has been performed with the benzoylated oestradiol, the esterification occurring at the phenolic hydroxyl group. The international standard of this compound is recognized at 0.1 γ. This unit, although suitable for experimental work on rats and mice, requires very great multiplication before it can be used in human therapeutics. Since these hormones act quantitatively in relation to the body weight it necessarily follows that a castrated woman will require many hundreds of thousands of units of oestrone and correspondingly less of oestradiol benzoate in order to effect the menstrual response. This gives the impression that very large quantities of hormone are being administered when in actual fact the quantities in terms of weight are only very small. It is to be hoped that in the near future agreement will be reached by the commercial firms supplying this material, and that the labels on the preparations and the commercial literature will indicate the milligrammes of crystalline material to be prescribed, thus avoiding the confusion of the biological unit.

The fact that there are five naturally occurring oestrogenic compounds all differing slightly in molecular structure leads to the question as to what chemical groupings are actually necessary for the production of oestrus. It is interesting to note that a series of synthetic oestrogenic compounds of relatively simple molecular structure have been described (Cook, Dodds, Hewett, and Lawson, 1934; Cook, Dodds, and Lawson, 1936). Molecules as simple as 1-keto-1:2:3:4-tetrahydrophenanthrene, and alkyl derivatives of 9:10-dihydroxy-9:10-dihydro-1:2:5:6-dibenzanthracene are found to be capable of replacing

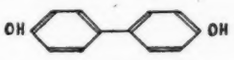


1-keto-1:2:3:4-tetrahydrophenanthrene.



9:10-dihydroxy-9:10-dihydro-1:2:5:6-dibenzanthracene.

oestrone in all its known actions. Maximum activity is obtained in the latter compound when the alkyl substituent is *n*-propyl. It is interesting to note that these compounds, in common with oestrone and oestradiol, all possess the phenanthrene nucleus, and until comparatively recently it was thought that this ring system was essential for the production of oestrus-producing properties. It has been shown, however, that this is not the case (Dodds and Lawson, 1936; Dodds, 1936), and a surprisingly simple series of compounds have been synthesized capable of producing oestrus. The most simple of these is 4:4′-dihydroxydiphenyl.



It is not possible at present to give an explanation as to why these simple compounds are active, nor is it possible to predict the essential groupings for oestrogenic activity. There still remains a great deal of work to be done on the simpler oestrogenic compounds before any adequate theories concerning the relation between molecular structure and oestrogenic activity can be formed.

BIBLIOGRAPHY

Allen, E., and Doisy, E. A. (1923). *J. Amer. med. Ass.*, **81**, 819.
Aschheim, S., and Zondek, B. (1927). *Klin. Wschr.*, **6**, 1321.
Butenandt, A. (1929). *Naturwiss.*, **17**, 879.
Cook, J. W., Dodds, E. C., Hewett, C. L., and Lawson, W. (1934). *Proc. roy Soc.*, B., **114**, 272.
—— —— and Lawson, W. (1936). Ibid., B, **121**, 133.
Dodds, E. C. (1936). *Helv. Chim. Acta*, **19**, 49.
—— and Lawson, W. (1936). *Nature*, **137**, 996.
Doisy, E. A., Veler, C. D., and Thayer, S. A. (1929). *Amer. J. Physiol.*, **90**, 329.

INTERNATIONAL CO-OPERATION ON HEALTH QUESTIONS

The report of the medical director of the International Health Office on the work of the session of the Permanent Committee of that body held in Paris last October has now been issued.[1] Among the matters discussed was the role of the Office under the projected scheme of reform of the Health Organization of the League of Nations. The terms of the new statute provide that the Permanent Committee shall continue to act as general advisory health council of the League and hold an annual assembly of the council at the end of one of its sessions, to which assembly representatives of States which do not participate in the work of the Office will be invited and at which members of the Health Committee of the League will have the right to attend.

Venereal Disease in Seamen

The efforts made to ensure continuity and uniformity of treatment in the different ports of seamen suffering from venereal disease seem to be bearing fruit. Australia, Belgium, Canada, and the Dutch colonies of Curaçao and Surinam have now been added to the countries which have notified the Office that the treatment recommended in the recent pamphlet distributed by the Office will be applied in future in their treatment centres.

Sanitary Convention for Aerial Navigation

Progress was reported in the designation of aerodromes according to the various categories specified in the International Convention of 1933, and particularly of anti-amaril aerodromes. It was agreed that the sanitary authority of the aerodrome is competent to decide which of the passengers of an aircraft have been exposed to yellow fever infection.

Discussion took place on the recent action of the Government of India in refusing access to its territory to (1) any aircraft within nine days of its leaving a country where the existence of yellow fever has been demonstrated either clinically or by the mouse protec-

[1] Paris: Office International d'Hygiène Publique, 195, Boulevard Saint-Germain.

tion test, unless "disinsectization" by means of pyrethrum extract "pyrocide 20," has taken place either at Cairo or at Alexandria; (2) any persons arriving by aeroplane within the same period, unless they have departed from an anti-amaril aerodrome or have been inoculated against the disease. The delegate for India gave the reasons that led his Government to take this step, which requires justification under the terms of Article 48 of the Convention. The committee expressed the hope that when the aerodrome at Karachi has been rendered anti-amaril the Government of India will reconsider these measures.

Consideration was given to the experiments made at Karachi and Khartum on mosquito destruction in aeroplanes by spraying with liquid insecticides. Experiments at Karachi with "pyrocide 20" have given encouraging results. The committee thought that the study of mechanical mosquito-preventing devices on aeroplanes should be continued, but that mosquito destruction in aerodromes was the best method of protecting aircraft against infestation from the insects.

Yellow Fever Surveys

The yellow fever immunity surveys undertaken in the Caribbean region indicate that in the six islands included in the survey—Cuba, Jamaica, Barbados, Porto Rico, St. Lucia, and Trinidad—there has been no infection from yellow fever during the last twenty years. In Mexico and Salvador the youngest subjects showing a positive reaction were born in 1925; the last clinical cases occurred in 1921 and 1924 respectively.

In the Anglo-Egyptian Sudan there was a high percentage of positive tests in several districts, reaching 78 per cent. in Kau. It has not been possible to connect these positive tests with the existence in the past of any disease resembling yellow fever. In the Belgian Congo striking results were reported. In 6 per cent. of cases a re-examination of the persons whose sera were negative in 1932 and 1933 gave a positive result, although no disease resembling yellow fever had been clinically detected in the region. After an epidemic of infective jaundice which occurred in the region of Libenge, near Ubangi, and which could not be identified with yellow fever, the percentage of positive tests rose from 6 (the figure for 1933) to 46 for convalescents and 26 for persons who said that they had not suffered from the disease. It is to be hoped that observation and study of such facts as these will one day clear up the mystery of positive protection tests in regions where yellow fever has never been diagnosed.

The yellow fever virus attenuated by culture on tissue has now been used, combined with immune serum, on more than 900 persons in London, New York, and Rio de Janeiro. No untoward reactions were observed.

Plague and Typhus

In certain Western States of the U.S.A. a mobile laboratory has been used during the past year to locate foci of sylvatic plague, which is more widespread than had been supposed. Three additional laboratories will shortly be put into the field. In spite of the spread of rodent plague only two human cases have been observed in the regions in question. The large-scale trials of anti-plague inoculation, initiated in the Dutch East Indies in 1934, were continued in 1935. It is estimated that, in the districts included in the test, mortality from plague will be reduced to 16 per cent. of that previously experienced.

The causes of the sporadic persistence of typhus in epidemic zones in Poland is the subject of continued study in that country. It has been found that lice are more easily infected by typhus patients in the first week of the illness than in the second; hence the importance of delousing. The Weil-Felix reaction and rickettsia agglutination showed the existence of hidden infection in thirty-seven persons in the entourage of patients, but efforts to infect lice or guinea-pigs from the blood of these persons were unsuccessful. The part played by hidden infections in the spread of typhus is thus uncertain, a conclusion which was also reached in Tunis. No positive Weil-Felix reaction has been found outside epidemic zones or after an epidemic has died out. Over 4,000 people have been inoculated against typhus in Tunis. The method employed has been devised by Laigret and entails the use of a living rat virus. Some febrile reactions have been observed, these cases being the only ones to give a positive Weil-Felix reaction. No cases of typhus occurred after the seventh day following vaccination. The period during which the virus can be conserved appears to be very short.

Poliomyelitis and Cerebro-spinal Meningitis

The difficulty of comparing statistics of poliomyelitis, owing to the practice in some countries of excluding cases without paralysis, was illustrated in communications presented by the delegates for Sweden and the United States of America. The committee suggested that delegates should consult their sanitary administrations regarding the possibility of introducing in their countries a system of notification whereby "paralytic" cases are differentiated from "non-paralytic." As regards the epidemic situation more than 2,200 cases were observed in Sweden during the first nine months of 1936, a recrudescence occurred in Norway in August and September, slight outbreaks were reported in some Swiss cantons and a small epidemic at Lisbon.

In connexion with the widespread epidemics of cerebro-spinal meningitis which have attacked the Anglo-Egyptian Sudan in recent years, the committee had asked for information on the disease in other parts of tropical Africa. From the communications received it would appear that in 1935 and 1936 British colonies in West Africa were but slightly affected, but the disease is more frequent in Kenya and particularly in Uganda, where 1,629 cases were reported in 1935, with a death rate of 47 per cent. In French African colonies cases are usually sporadic in districts of even temperature, but where there are variations of heat and rains epidemics are liable to occur. In 1921–4 a severe outbreak caused 15,000 deaths in the Niger and Upper Volta districts. The appearance of the rains usually puts a stop to the epidemics. Experimental inoculation at Fort Archambault and in the Anglo-Egyptian Sudan gave inconclusive results, owing in the former case to the onset of the rainy season. The results of prophylactic inoculation in the Anglo-Egyptian Sudan with vitamin A appear sufficiently encouraging to deserve further trial.

Weil's Disease

Up to the present only about fifteen known cases of Weil's disease have been reported in Poland, usually in connexion with river bathing. In Denmark the disease is more frequent than was thought (forty cases in three years). At Copenhagen out of 100 rats twenty-four were found to be infected. In Holland study of the disease has been continued, chiefly with the help of the Tropical Institute at Amsterdam. Of 279 cases examined 106 showed no signs of jaundice; the diagnosis of such cases is difficult. In eight cases out of 163 where the bacillus was studied the pathogenic agent was found to be *Leptospira canicola*, differentiated by Dutch authors from the classical leptospira. In Europe three leptospiroses are now known—icterohaemorrhagic, canine, and "typho-grippal" (Schlaman fieber).

Bovine Tuberculosis

Recent research in Amsterdam having shown that the occurrence of bacilli of the bovine type in human pulmonary tuberculosis was more common than had been thought—namely, 2.6 per cent. in Amsterdam and 11.2 per cent. in rural districts—the committee had asked for similar information from other countries. In Denmark it appears that the proportion varies directly with the amount of tuberculous infection of the cattle, reaching 20 per cent. in Jutland, where the cattle are heavily in-

fected. For Germany, England and Wales, and Scotland the figures were 0.7, 1.4, and 4.9 respectively.

It seems from the statistics that countries with a low incidence of tuberculosis of bovine origin are Norway, India, and Japan; with a medium incidence, Germany and Switzerland; with a high incidence, Great Britain. The cause of the high incidence in Great Britain is doubtless the heavy infection of milk with the bovine bacillus. Since the eradication of tuberculosis in cattle is hardly possible, reliance must be placed on efficient pasteurization.

Ankylostomiasis

The incidence of hookworm infestation in the United States appears to be limited to mining areas in about six States and to certain rural areas of the South. In France a great diminution has been found since the inquiry undertaken in 1904–7; infestation is now apparently confined to certain mines in the Loire area. In Hungary three out of thirty-three mines and in Spain one mine and at least one rural area in Murcia were found to be affected. In Tunis the mining population appears to be free, but a heavy infection of the native population in four cases was discovered.

It is concluded that ankylostomiasis is not a serious disease in Europe for persons living under good hygienic conditions. The majority of mines are either free or very lightly infected. Certain foci of infection still remain, however, in which a vigorous campaign against infestation is required.

Mental Hygiene

Contributions to the study of the classification and education of backward and abnormal children were presented by the delegates for Great Britain, Canada, France, and Rumania.

The British report gave a full summary of the measures taken for the education of mentally defective children as the outcome of the Royal Commission report of 1908 and the subsequent legislation based on that report. In its broad outline the organization in Canada follows that of England, and it is estimated that half the backward children in the country are receiving suitable treatment. In order to encourage doctors to devote more attention to the mental health of the population the schools of medicine are to give a larger place in their curricula to the study of psychiatry and mental hygiene.

A comprehensive summary shows that the problem of the backward and abnormal child has been studied in France since the beginning of the century. There are a number of special schools, both day and residential, for backward children throughout the country, but there is as yet no official system for ascertaining or classifying such children. Schemes for dealing with abnormal children are of more recent date and are consequently less well developed, but as regards difficult children the Ecole Theophile Roussel at Montesson is obtaining good results. Rumania possesses four State institutions capable of receiving some 650 abnormal children of all categories. Morally abandoned children are cared for by two private societies, one of which possesses a school where the children can receive professional training. The Penal Code of 1936 provides for the treatment and care of delinquent children on modern lines.

The committee decided to continue the study of this subject at the next session, under the aspect of the cause and prophylaxis of mental backwardness.

In connexion with the first International Congress of Pyrotherapy, to be held at Columbia University, New York, from March 29 to 31, those who propose to contribute to the discussion on pyrexia treatment in paediatrics are asked to send summaries of their papers to Dr. G. Blechmann, 30, Avenue de Messine, Paris, VIII. Fees for the congress and requests for more detailed particulars should be sent to the general secretary, Dr. André Halphen, 222 bis, Rue Marcadet, Paris, XVIII.

JOHN HUNTER, ARMY SURGEON

LECTURE AT ROYAL COLLEGE OF SURGEONS

A special lecture was given by Professor GEORGE E. GASK at the Royal College of Surgeons of England on February 15 on "John Hunter in the Campaign in Portugal, 1762–3." A short time ago there came into the market, and was acquired by the College, a bundle of MSS., the property of John Campbell, Earl of Loudoun, who commanded the British expedition to Portugal at the end of the Seven Years War. This campaign was quite an unimportant side-show, with practically no fighting, and military historians dismissed it in a few words; but Lord Loudoun, though not conspicuous for military genius, had the merit of being tireless in matters of documentation, which accounted for the preservation of the papers. As some of the documents relate to John Hunter they have a special interest for the College, and to Professor Gask was given the duty of arranging them.

John Hunter, said the lecturer, quite early in life seemed to have thought of a military career. When he came to London in 1748, at the age of 20, he wrote that if he could not help William he would not mind going into the Army. Ultimately, in 1760, he did enter the Army, possibly for health reasons, obtaining an appointment as staff surgeon in the expedition to Belleisle, and when the campaign in Portugal was organized he was sent with four foot regiments to Lisbon as one of the surgeons for the military hospital. Professor Gask exhibited a list of the hospital staff. The director was William Young, who received 25s. a day, and there were two physicians, William Cadogan and Michael Morris, who received 20s., and three surgeons, John Hunter, William Maddox, and Francis Tomkins, who only received 10s. There were also two apothecaries and sixteen surgeons' mates. Another list gave the names of the servants attached to the hospital, and it was specially interesting to note that these included a staff of nurses. The matron was remunerated at the rate of 2s. 6d. a day, the two head nurses at 1s., the same rate of pay as was received by the three cooks and the five washerwomen, but the pay of the fifteen nurses was only 6d. It might come as a surprise to some that nurses should have been attached to a military hospital at this period. One theory was that the nurses were really camp followers—that is, wives of the soldiers—but in Professor Gask's view all the evidence went to show that these women were recruited in London, probably from the voluntary hospitals, and sent out to Portugal. They were not, of course, trained as nurses nowadays were expected to be trained, but they were nevertheless professional women.

Documents from the Campaign in Portugal

Among the documents exhibited was one from Lord Loudoun addressed to the director of the hospital, ordering him and the staff to repair to Portsmouth for embarkation on the hospital ship *Betty*, which was to be convoyed to Lisbon. Another was a return of the sick on board this boat during the voyage, the number being thirty-four. On arrival at Lisbon the hospital was established in four houses. It was remarked by the adjutant-general that though the hospital was rather overstaffed none of the nurses could be discharged, as their places could not be filled in emergency. The discipline of the hospital was set out on a sheet of standing orders, and was an iron one—the term "black hole" was even mentioned among the penalties. Hunter, who had a Scottish solicitude with regard to his pay, applied for the position of deputy director, but, in fact, that post was never filled. Later on Cadogan, one of the physicians, being invalided home, he applied for the vacant post—"I take the liberty to recommend myself, and I hope the following reasons will plead my excuse"—but he did not get the appointment, Loudoun being unwilling to lose the services of a good surgeon.

Professor Gask showed a map of the campaign. The British force advanced along the Tagus and took its stand at Santarem, where a base hospital was established. Among the various documents collected were sick lists, but it was remarkable that among the casualties there was no mention of a wound. One return showed the sick list of the 83rd Regiment, and Professor Gask ran through the diseases—asthma, fever, pain in the head, flux, diarrhoea, swelling in the legs, and so on, "the age-long complaints of the Army." The letters from Hunter to the commander-in-chief concerned routine matters of administration, such as arrangements for transport, evacuation of the sick, and the like. One document set out his proposals for a temporary or flying hospital. They appeared to be very sensible ones, succinctly expressed, and such as, Professor Gask thought, would be acceptable to any director-general to-day. The idea that Hunter could not write a letter and had to get his letters written for him was finally disposed of by this correspondence. He was undoubtedly perfectly competent to write a good precise letter. They were business communications, not remarkable for literary style or epigram, but he was a very faithful correspondent of the commander-in-chief.

Another common idea about John Hunter was discouraged by this correspondence—namely, that he was a quarrelsome, contentious individual. From some of the letters it appeared that fierce disputes arose between his fellow surgeon Francis Tomkins and more than one of the surgeons' mates, and in the expostulatory letter written by one of the mates complaining of Tomkins's high-handed conduct over a small dereliction it was mentioned that Mr. Hunter was present, and no doubt would be prepared to verify the facts, but that he took no part in the dispute, the matter being one which did not concern him.

By the middle of November, 1762, an armistice had been declared, so that there was no further fighting. The subsequent papers were concerned chiefly with the return of the expedition to England. In one letter John Hunter was asked to send in a statement as to how many boats would be required to evacuate the sick. The final document was a list of the officers, Hunter among them, who had served from February 10, 1762, to May 14, 1763, with their pay sheet. Hunter, who had taken the opportunity while in Lisbon to carry out experiments on the organs of hearing in fishes, returned to London, retired from the Army on half-pay, and, according to G. C. Peachey's *Memoir*, found his way first of all to the house of Robert Home, whose daughter Anne he married eight years afterwards.

THE HUNTERIAN DINNER

On the evening of the same day the Hunterian festival dinner was held at the College, the guests being received by the President, Sir Cuthbert Wallace, and the vice-presidents, Sir Charles Gordon-Watson and Mr. Victor Bonney. After the "Memory of John Hunter" had been toasted in silence Sir Cuthbert Wallace referred to the recent deaths of two great surgeons, Sir John Bland-Sutton and Lord Moynihan, former Presidents of the College, who, strangely dissimilar in character, had both advanced surgery in the Hunterian tradition. In the course of a brief tribute to John Hunter Sir Cuthbert noted the life-long curiosity of the man, using that word in its best sense to mean his wish to find out how things worked. Another characteristic was his diligence; he was a "whole-time" man, who worked morning, noon, and night, and when stricken with mortal illness made himself the object of his own observations. The College museum was Hunter's monument. Such an institution could not stand still; like Hunter, it must go forward in research. It was the duty of the College to keep abreast of surgery of the day, while at the same time illustrating the development of surgery in the past. The Buckstone Brown farm had been a great step forward, and the gift from the Bernhard Baron trustees of £25,000 for new laboratories at the College had now been increased to £30,000, so that the flame received from John Hunter might be kept burning brightly at the headquarters of British surgery. The toast of "The Guests" was proposed by Sir Charles Gordon-Watson, who welcomed among others five of the Hunterian trustees, the treasurers of the four Inns of Court, the Dean of Westminster, the Medical Directors of the Navy, Army, and Air Force, the President of the Royal College of Surgeons of Edinburgh, and eight Masters of City Companies, including two medical men, Dr. Stanley Bousfield and Dr. Arthur Gibbons. This distinguished company, he said, had assembled to pay tribute to the pioneer of scientific surgery, whose career was enshrined within the walls of the College. Sir Arthur MacNalty, Chief Medical Officer of the Ministry of Health, replying to the toast, gave a message of regret for his absence from the Minister, Sir Kingsley Wood. He pointed with satisfaction to the increasing contact between surgery and preventive medicine since the time of John Simon, who was President of the College while doing pioneer work in sanitary reform. Sir Farquhar Buzzard proposed the health of the Hunterian Orator of 1936, Mr. C. H. Fagge, who briefly acknowledged the toast, and after dinner a series of cinematographic films were shown in the lecture theatre, and in the council room was an exhibition of pictures, prints, and drawings of the College buildings.

Reports of Societies

TREATMENT OF FACIAL PARALYSIS

At a meeting of the Medical Society of London on February 8, with Sir WILLIAM WILLCOX presiding, the subject for discussion was the treatment of facial paralysis. Short reels of cinematograph film illustrating the technique of operations or the results of treatment were shown by Sir HAROLD GILLIES, Mr. TERENCE CAWTHORNE, and Mr. DICKSON WRIGHT.

Aetiology and Prognosis

Dr. MACDONALD CRITCHLEY said that to the neurologist the treatment of facial paralysis could be summarized in three words: massage, electricity, and facial splint. The end-results were often diverse, notwithstanding similarity of treatment. He limited his remarks to Bell's palsy. Traditional teaching postulated an acute inflammatory swelling of the nerve trunk and its interstitial tissue as a result of cold, with subsequent strangulation of the nerve. A proportion of the cases of Bell's palsy were due to the operation of a neuro-fixating virus, of herpes or some other variety, but the majority were probably not virus infections. The occurrence of second and third attacks was frequent enough to render unlikely any universal operation of a neurotropic virus. Some looked upon Bell's palsy as the result of two aetiological factors: the effect of cold coupled with some focus of infection in the vicinity. It would be safest to regard the condition as a symptom which might have more than one cause. As for the results of treatment, it was believed that good end-results were obtained in 80 or 85 per cent. of all cases. It had been suggested that pain and loss of taste were important prognostic features in the early stages. Most cases of the Gowers–Ramsay Hunt syndrome did badly, while other virus affections of the facial nerve did very well. Between these extremes lay the majority of cases of palsy of obscure origin. Clonic facial spasm was a very common sequel of Bell's palsy. The treatment consisted of massage and manual stretching of the muscles in contraction. Facial synkinesia or involuntary associated facial movements also often developed. He asked for suggestions for treatment of the acute cases of Bell's palsy where clinical judgement or the electrical reactions

suggested that no good end-result was likely. Should treatment proceed by physiotherapy as usual, or should decompression of the facial nerve be done?

Plastic Operations

Sir HAROLD GILLIES (who took the place at short notice of Mr. T. P. Kilner) said that plastic operations for the face were a most indifferent operative procedure as compared with what—at least he hoped—was produced by nerve-grafting and decompression operations. It was when the face was completely "dead" that the plastic surgeon found his opportunity, and for his own part he felt himself to be a kind of "facial undertaker." At the same time these fascial slings which were put into the face must appeal to the mind as surgical splints of a more efficient character than the usual mechanical aids employed, and they might be a means of preventing in some cases the over-stimulation by electrical treatment of a muscle which was already "knocked out." He thought that in a case with a bad prognosis the advisability of fascial slings should be considered. The operation of putting them in was comparatively simple, its complications were not serious, and if the nerve did recover then the bands would have done nothing but accelerate such recovery. Facial paralysis in a young person presented a most distressing picture, and however disappointed he himself might be in the cosmetic result the patients themselves were invariably delighted with the result of the operation. The support of these slings seemed to be greatly appreciated, and in the comfort given by such support the patients overlooked the efficiency of the operation from an aesthetic point of view. It should not be impossible to develop an association between two groups of muscles so that when a person bit his food he smiled instead of making the grotesque movements which often accompanied the act of mastication. The two movements could not be far away, and might be associated. Sir Harold Gillies then showed a film illustrating the plastic operation in a case of paralysis following mastoid disease. Fascia lata was taken from the thigh, and strips used in remodelling the face.

Nerve Grafting

Mr. TERENCE CAWTHORNE said that although most cases of facial palsy recovered there remained an unfortunate minority which, by the very nature and extent of the lesion causing the paralysis, could never recover of their own accord. It was with this latter class of case that the surgeon was concerned. Until recently the most favoured operation was anastomosis of the distal end of the divided facial nerve. The results were not very encouraging, and a satisfactory return of facial movements could only be expected by exposing the nerve at the site of injury and attempting to restore anatomical continuity. One of the pioneers of facial nerve surgery was the late Sir Charles Ballance (the discussion was taking place on the first anniversary of Sir Charles Ballance's death), who performed the first anastomosis operation, he believed, over forty years ago. Later on Duel in New York evolved a special technique.

In considering facial paralysis the result of operative trauma, early exploration was indicated in all suspected cases, and restoration of continuity should be effected by direct apposition of divided ends. The degree of recovery after facial graft largely depended upon the interval between the injury and its repair. If the paralysis was not noticed immediately, but went on gradually and possibly was never complete, the likelihood was that such a case was one of slight injury and resultant oedema which would recover spontaneously. Cases of palsy that were going to recover completely on their own did not as a rule entirely lose the faradic response. The loss of faradic response a week after paralysis indicated a severe lesion, with the improbability of a complete spontaneous recovery. The first essential step was exposure of the nerve at the site of the injury. Then, and not until then, the surgeon would be in a position to say what further treatment, if any, was required to restore the continuity of the damaged nerve. If, as was sometimes the case, especially when some interval had elapsed between the time of injury and the time of exploration, there was a considerable gap after the severed ends had been freed of tissue, a graft would be necessary. Ballance and Duel had shown that the only material worth consideration for bridging the gap was a piece of living nerve. By using degenerated graft Ballance and Duel also found that they obtained better and speedier results than by using fresh nerve grafts. It had been thought until recently that the graft should be the same size as the nerve, but it had been found that two or three strands might give better results than one thick graft. A graft as long as 26 mm. had been used with successful results. The results of the Ballance and Duel nerve-graft operation had been remarkably good. Most of the reported cases had recovered emotional as well as voluntary movement. Even in the worst cases, where a long interval had elapsed between the injury and the graft, a considerable degree of voluntary movement could be expected. Residual paralysis as a result of pressure on the nerve either from without the sheath or from within might be prevented by decompression in some cases.

Suture of Facial and Hypoglossal Nerves

Mr. DICKSON WRIGHT mentioned that he had had good results in two cases of decompression of the nerve in footballers who had sustained injury by a kick on the mastoid process. In clonic facial spasm the operation of decompression was suggested to him by Dr. Duel, and he tried it in three cases, but in none of the three was the clonic spasm affected at all, so that he thought that operation could be ruled out as being of any value in the treatment of clonic facial spasm. There were a certain number of cases in which the Ballance–Duel operation failed and a certain number of cases of facial paralysis arising from intracranial tumours in which that operation held out no hope. The operation expounded by Sir Harold Gillies was indicated, as he himself had said, for "dead" cases—cases without any power of return in the muscles. In between the Ballance and Duel graft and the temporal muscle plastic operation came the operation of suture of the twelfth hypoglossal nerve and the facial nerve, and he showed a film of this procedure with some very good results.

General Discussion

Mr. CECIL WAKELEY said that he had the pleasure of working with Sir Charles Ballance for ten years at the West End Hospital for Nervous Diseases, where the operation was carried out on fourteen of these cases, with good results in twelve. In some the mastoid operation had been done three years previously. In certain of the later cases the hypoglossal nerve was taken and split, half of it only being used, and just as good a result was obtained as when the whole was used, and the paralysis of the tongue was almost minimal.

Mr. HAROLD KISCH said that he had had experience of four of these cases, two of which were of too recent date to report upon, and the other two were successes. One woman, aged 23, treated after radical mastoid operation, had shown no recovery until after nearly eighteen months. In this case there was suppuration at the time the graft was inserted. He thought that both Duel and Ballance claimed that recovery could be obtained in the presence of suppuration. Questions on the technique of grafting were put by Mr. DONALD WHEELER, Dr. LIVINGSTONE, and others.

Dr. MACDONALD CRITCHLEY, in reply, said that he was not yet clear as to the indications for operative intervention in these cases of Bell's palsy. Mr. Cawthorne had said that loss of faradic response towards the end of the second week might be taken as such an indication, and that was the usual teaching, but he understood that

there were a good many exceptions to it, and that cases in which there was true reaction of degeneration at the end of the second week might make a good recovery, while cases which seemed to have their faradic response at the end of the first fortnight did not necessarily make such a recovery. Sir HAROLD GILLIES said that the clear indication which the opener had emphasized still appeared to be wanted. He questioned whether grafts should be inserted in the presence of suppuration. Mr. TERENCE CAWTHORNE said that Ballance and Duel laid it down as their experience that suppuration was no bar to successful nerve grafting. His own experience had been too short to be of any value, but in three of his cases there had been a certain amount of suppuration, and he got a fair amount of facial movement back. He felt very uncertain about the position of faradic response in Bell's palsy.

MENTAL DISORDER AND THE ENDOCRINES

A special discussion on the relation between mental disorder and the activities of the endocrine glands took place at a combined meeting of the Sections of Psychiatry and Medicine of the Royal Society of Medicine on February 9. Dr. T. A. ROSS was in the chair.

Testicular Hormone

Dr. F. L. GOLLA said that none of them had come prepared to defend a pathogenesis of mental disorder based on diseases of the ductless glands, to say that diseases of the ductless glands were associated with various forms of mental disorder, or that such disorder could be improved by the administration of extracts or implantation of ductless glands. There was no evidence of that sort. In every mental hospital the experience was that disorders of the ductless glands were fewer than in the world outside. A further question was how far the symptomatology of mental disorders was influenced by disorders of the ductless glands. Again there was very little evidence. Not much was known about hormonic influences on the central nervous system. It might be that there were all sorts of structures capable of passing on internal secretions of whose functions they were quite unaware. Recent work had suggested that there were nerve cells in the diencephalon which had a secretory function, and by inference it might be assumed that the secretion was exactly that attributed to the posterior and possibly the anterior lobe of the pituitary. But there was not the faintest evidence, so far as he was aware, of any particular form of secretory disturbance accompanying any particular form of psychosis. The variations in function noted in the insane were probably paralleled by those noted in the sane. There was, however, one structure—namely, the gonadal system, particularly the testicle of the male—which would respond even to the violent procedure of the histologist, and in the end would still show the disturbance of structure which it might be assumed was accompanied by a disturbance of function, associated with the mental disorder labelled schizophrenia. He showed the slides of the microscopical appearances as obtained by the late Sir Frederick Mott, and said that Mott's work on the testicle afforded an objective proof that a mental disorder was associated with a profound bodily disturbance of a specific kind not found in any other disease.

For some curious reason nobody seemed to have given these observations of Mott the attention they deserved. Their importance was very great to those of them who believed that in many mental disturbances a general bodily disturbance was being dealt with, one of the symptoms of which was a disorder of conduct (he would not use the term disorder of mind). This was found associated with a profound disturbance of at any rate one part of the endocrine system. Could one go any further than this? If the whole of the male sex organs of an animal were ablated and a testicular implantation was made into the castrated animal it would sometimes exhibit normal sexual behaviour, the conclusion being that the testicular hormone had a particular affinity with the nerve mechanism responsible for the sexual act. That this nerve mechanism could be acted upon by an endocrine secretion was the only proof in endocrinology so far as he knew which gave any support to the theory of the action of the endocrine organs directly on the nerve mechanism. In the case of the pituitary many things which were suggestive were found, but it could only be said that the pituitary appeared to act as a general driver on of the endocrine system; it was under the guidance of the diencephalon, and who was to say which was the primary source of disturbance—the diencephalon or the pituitary?

The supposed relations of endocrinology to the psychoses were conditioned a great deal by an entirely wrong idea of how the central nervous system functioned. It was the most labile structure imaginable; if it could not get a thing executed in one way it would get it executed in another. It was capable of infinite variety of accommodation to any form of disorder, and although an endocrine disorder could be imagined as causing a general loss of excitability or generalized hyperexcitability, he for his part found it very difficult to imagine that any particular form of endocrine disorder, known or unknown, could excite or depress any particular function of the central nervous system.

Reciprocal Relationship of Endocrines and Brain

Sir WALTER LANGDON-BROWN sent a contribution which was read in his absence by Dr. Levy Simpson. He said that in the sphere of character and mental attributes there was less dogmatism as to the primary importance of the endocrines than a decade ago. This was largely due to the recognition of the role of the diencephalon in expression of emotion on the one hand and its connexion with the pituitary gland on the other, while the pituitary had become recognized as the intermediary between this emotional centre and the other endocrine glands. Thus not only could the endocrine make-up influence the emotional state but the emotions could influence the endocrines. Evidence of endocrine disorders in mental hospitals hardly suggested that they were a common cause of the psychoses. The relation between endocrine dysfunction and mental disorders had probably been overrated, especially in view of the frequent occurrence of endocrine dysfunction without psychosis. Major endocrine disorders were more often associated with the psychoneuroses than with the psychoses, and here the sequence of development and the favourable results of correcting the endocrine disorder suggested that the glandular condition was sometimes primary. There was no doubt that a direct connexion between glandular dysfunction and mental disturbance was clearer in the case of the thyroid than in that of any other gland. The untreated cretin was placid and adaptable, just as the sufferer from an excess of thyroid was irritable and intransigent. In advanced myxoedema melancholia was not infrequent, but acute mania might occur. Hector Mackenzie's description of Graves's disease as a state of continued fear was an illuminating one, and nearer the truth than could be realized at the time. For whatever the psychical origin in an individual case the predominant feeling was one of fear, masked though it might be. The causes of Graves's disease were sex, sepsis, and emotional stress, and the discovery of the pituitary thyrotropic hormone suggested a possible mechanism for the third factor via the hypothalamus.

Dyspituitarism might be characterized by a sense of inferiority, feeble inhibitions, emotionalism, fantasies, amoral conduct, and sometimes confusional insanity. In Addison's disease the patient might be negative and inert. Virilism, resulting from adrenal cortex tumours or hyperplasia, might result in loss of modesty, maternal instinct, and normal libido, the last being occasionally replaced by homosexual instincts. Insanity from diabetes had practically disappeared with the introduction of insulin. Hypoglycaemia, either spontaneous or from insulin over-

FIG. 1.—Showing size and density of the stone in each kidney.

FIG. 2.—Remains of right kidney, obtained post mortem.

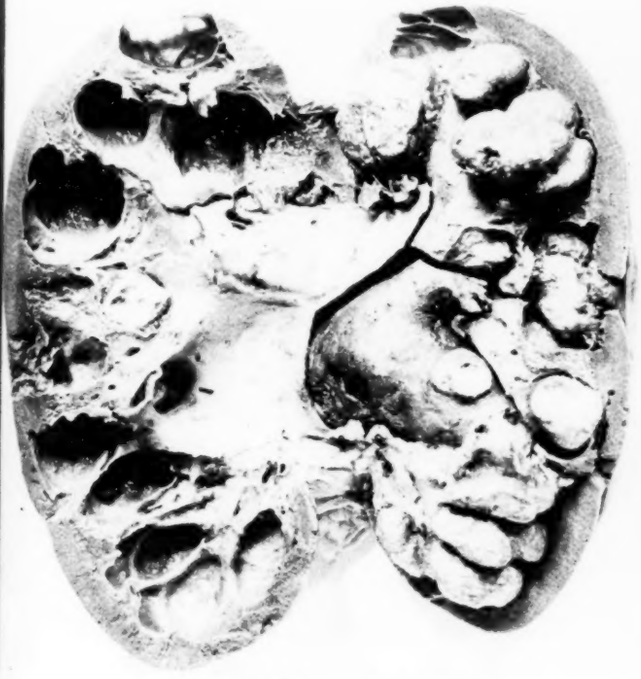


FIG. 3.—Left kidney laid open to show calculus.

FIG. 4.—Stone in right kidney, weighing 1¼ lb. before drying and 1 lb. 6 oz. after drying.

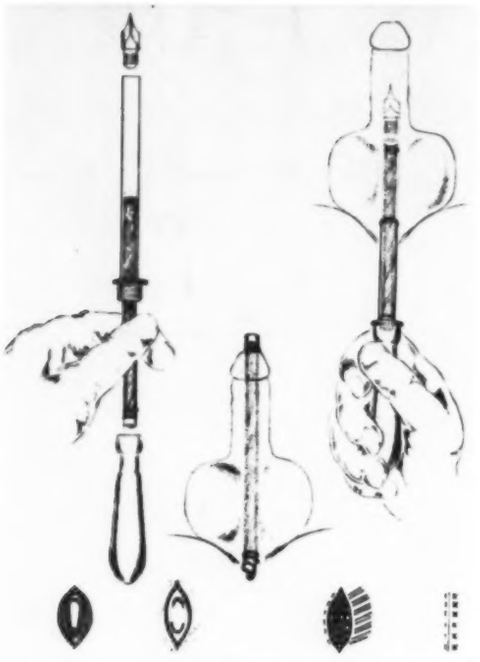


FIG. 1.—Showing introducer containing skin graft on catheter, method of introduction, and graft in place. End-to-end anastomosis of new urethra and hypospadiac meatus.

FIG. 2.—Adult hypospadias after several unsuccessful flap operations.

FIG. 3.—Epithelial inlay after straightening ventral curve and removing scar tissue. The catheter has been constantly *in situ* for six months.

FIG. 4.—Urethra after end-to-end anastomosis admits No. 10E catheter.

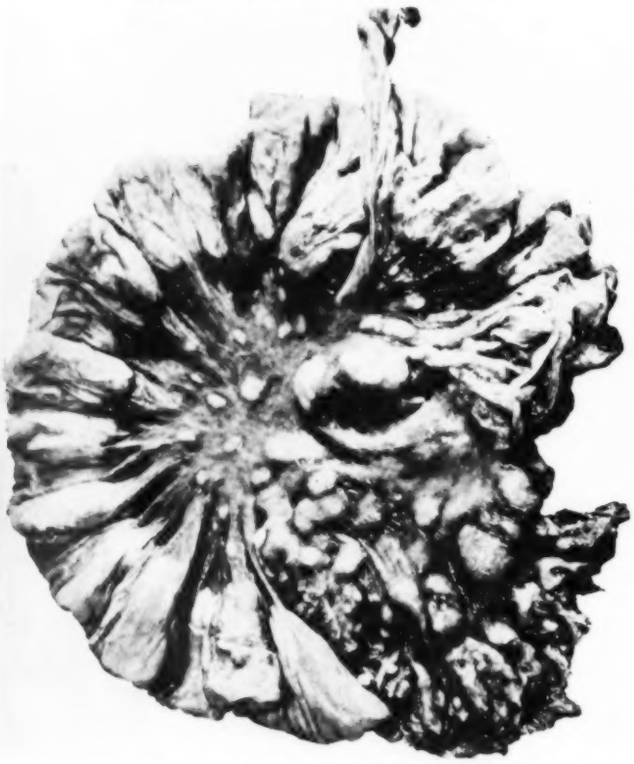
FIG. 5.—Primary adult scrotal hypospadias.

FIG. 6.—Epithelial inlay after Edmunds's straightening operation. Catheter No. 11E in place for five months.

FIG. 7.—Showing correction of ventral curve.

FIG. 8.—Final result after end-to-end anastomosis. Note normal appearance of meatus.

N. HAMILTON FAIRLEY AND F. P. MACKIE: THE CLINICAL AND BIOCHEMICAL SYNDROME IN LYMPHADENOMA AND ALLIED DISEASES



Lymphoma of the mesenteric lymph glands associated with lymph stasis and a sprue-like syndrome. (Case I.)

PAUL CAVE: CASE OF LITHOPAEDION

Antero-posterior view.

R. LESLIE STEWART: TREATMENT OF MINOR BURNS BY AMYL SALICYLATE AND OTHER SALICYL ESTERS

FIG. 1.—Case I (No. 24). Scald on leg. Primary surface dressing still adherent nineteen days after commencement of treatment.

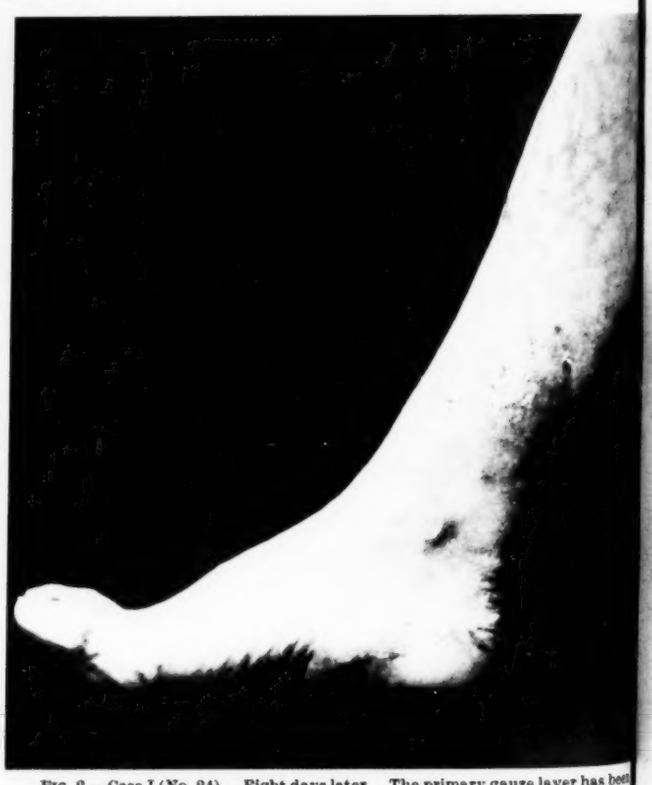


FIG. 2.—Case I (No. 24). Eight days later. The primary gauze layer has been shed. The injury is perfectly healed with slight surface scaling seen in the centre

dosage, might produce mental symptoms ranging from vague apprehensions to maniacal excitement. The diagnosis of hyperplasia or neoplasm of the pancreatic islets might be unfortunately overlooked. Hallucinations occasionally complicated hypoparathyroidism. Pineal tumours resulted in mental precocity and sometimes insanity. Turning to the gonads, the speaker said that many mental defectives were prone to hypogonadism. Among the vague endocrine manifestations in dementia praecox reversed secondary sexual characters and variations in gonadal structure were perhaps the most frequent. Very few definitely hypogonadal individuals escaped a sense of inferiority, which might develop into a positive psychosis. On the endocrine side of the menopause it might be stated that there was temporary over-secretion of prolan, apparently as an attempt to stimulate the failing ovarian secretion, which led to a vasomotor instability and might well be a contributory factor in instability of the emotional and mental kind. It was interesting that both at the menopause and after castration there was an increase in a certain type of cell in the anterior pituitary. The evidence in favour of a male climacteric was rather unsatisfactory, but the effect of a hypertrophied prostate in removing normal sexual inhibitions was only too clearly demonstrated in the law courts.

Functions of the Hypothalamus

Dr. F. A. PICKWORTH said that in 1928 he read before the Society a paper showing the very frequent occurrence in cases of mental disorder of symptoms referable to the hypothalamic region of the brain. He collected such signs and symptoms from sixty cases, which later were published in the *British Medical Journal*. Since then the hypothalamus had been shown to have very important functions in relation to endocrine activity, and it was now customary to speak of the pituitary and hypothalamus as an endocrine-nervous unit acting as a whole. This, however, was misleading, since many if not all of the other endocrine glands acted through or were influenced by the hypothalamus. Of the glands influencing the hypothalamic region the pituitary had the most intimate nervous and capillary connexions. He proceeded to show by lantern slides a method by which pituitary hypothalamic dysfunction resulted from irritation by contiguous septic processes in the adjacent sphenoidal sinus. A macroscopic abnormality of the pituitary could be detected post mortem in a large proportion of cases of mental disorder. Dr. Pickworth's conclusion after describing and illustrating some cases was that no direct relationship existed between endocrine activity and mental disorder, and that a connecting link was necessary for an intelligent understanding of their relationships. This link was, he believed, to be found in disturbances of the capillary circulation of certain parts of the brain—for example, in the sympathetic-parasympathetic regions of the hypothalamus, where psychic stimuli met and acted conjointly with stimuli arising from various endocrine activities to govern visceral metabolism. The fine capillary circulations of such areas were undoubtedly affected in two clinico-pathological conditions—namely, chronic syphilis (general paralysis) and chronic sepsis. In chronic sphenoidal sepsis the contiguity of the toxic processes to the pituitary, hypothalamus, and frontal cortex was a factor of primary importance in the aetiology and varying types of mental disorder, including that of mental defect.

Dr. A. P. CAWADIAS said that the two openers of the discussion were specialists, and the specialist looked at the patient from a particular point of vantage, bringing certain elements into prominence and leaving others in shadow, yet the shadows were as important as the lights. Dr. Golla had cited the work of Mott. But did that work mean that schizophrenia was of testicular origin? Certainly not. He thought there was too great a tendency to speak in terms of diseases: it was the patient after all whom they had to treat. They had to act on the predominant factor, which was a factor individual to each patient. He thought that many mental conditions, especially psychoneuroses, had been described as of endocrine origin on insufficient data. It was forgotten that endocrinology was really a development of metabolism. There were certain cases in which mental disturbance was due to endocrine action, but it must be remembered that all hormones acted on the nervous system; they were the regulators of metabolism, and the nerve cells were under the influence of all metabolic disturbances. Mental disorders were not always endocrine but often due to mental factors, and while he thought it necessary to render to Caesar—that is, the endocrines—what was justly due, the mental and psychological factors ought also to receive their proper tribute.

Internal Secretions and the Central Nervous System

Dr. T. R. C. FRASER reported a case from Maudsley Hospital in which definite abnormalities were found and removed, with relief of symptoms. It was a woman, aged about 30, who for eighteen months had been suffering from what was described as neurasthenia—tiredness, insomnia, irritability, and attacks of palpitation. Towards the end of this period she began to have attacks in which consciousness was disturbed, and the interesting feature of them was that they appeared to be typical catatonia. Her hands and legs would stay in any position in which they were put. In walking she would walk into a wall not noticing it was there. It was discovered that there was an adenoma of the pancreas, and its removal not only relieved the attacks but also the interval symptoms. Several biochemical observations made while in hospital indicated that the symptoms from which she suffered could not be entirely explained in terms of blood-sugar level. One day she might be seen in an apparently normal state and another day in complete coma, but the variation in the blood-sugar figures was in the opposite direction. The conclusion was eventually reached that the occurrence of these attacks was as closely related to the amount of insulin circulating in the blood as it was to the blood-sugar level. That might indicate the possible influence of one other internal secretion on what might be presumed to be central nervous system functioning.

Dr. PATERSON described some experiments by Richter in New York on the measurement of spontaneous activity in rats. It was found that if certain glands or organs were removed there was no change in cyclical activity, but, on the other hand, if the anterior lobe of the pituitary were removed the animal became almost totally inactive. Resection of the suprarenals had less effect though no less definite, that of the gonads had still less effect, and the thyroid least of all. This work had almost certainly a bearing on manic-depressive psychosis in man. In time even clinically it might be possible to distinguish two types of cases: one the patient who was simply using fatigue as a conversion symptom, just as he might use some other disability, and the other the patient who was really suffering from a definite temporary failure of spontaneous activity. Individuals varied in the amount of activity displayed in the routine of living. This activity depended on external and internal factors, on the opportunity of the situation, habit, and ability to direct energy into social channels, but also on some internal drive. The investigation of this last-named factor seemed interesting.

Dr. N. HARRIS gave certain experiences of treatment of cases falling in the manic-depressive group. In women suffering from depression at about the menopause there were some who still menstruated regularly and others whose menstruation had ceased. The oestrogenic substance would presumably be most effective in the latter, but the results of treatment needed correlating. Dr. H. A. PALMER suggested an experimental control in a large hospital by using in one series of patients a barbiturate and in another paraldehyde. The question of the hypothalamus needed to be put on a sound experimental level. One interesting point was a biphasic effect in the recovery of many of these cases. The patient was given the treatment, got better, gradually relapsed, and afterwards began

to make a possibly permanent recovery. He gave an interesting hypothetical explanation. Dr. DORIS ODLUM drew attention to the exacerbation of all kinds of symptoms in women during the menstrual period. This was very noticeable in schizophrenic and manic-depressive cases and all kinds of neuroses. Possibly it was this which gave rise to the old idea of an association of lunacy with the full moon. This exacerbation in all women of unstable emotional make-up at the time of the menstrual period was a point in favour of the connexion between endocrine alteration and psychological factors.

Minor Degrees of Endocrine Instability

Dr. LEVY SIMPSON, in summing up the discussion, said that there was a certain agreement between Dr. Golla and Sir Walter Langdon-Brown, except that the latter tended to carry the reciprocal influence of the endocrines and mental functions rather further. The speaker did not think it possible to over-emphasize this reciprocity; there were many instances of it. Shock, for example, might cause a premature menopause; anxiety might cause amenorrhoea lasting for some months. The effect of hyperadrenalism on emotion was well known; it had been said that all the emotions of a love scene could be produced with an injection of adrenaline. Hyperthyroidism seemed to work both ways. There was also some evidence of a vagus type of hyperinsulinism which might lead to disorder of conduct. He drew attention to the very interesting condition of anorexia nervosa in which could be seen—and one assumed it had nothing to do with endocrines to start with—all the changes that occurred in Simmonds's cachexia—namely, low blood pressure, low blood sugar, increased carbohydrate tolerance, amenorrhoea, hyperplasia of uterus, low temperature, low basal metabolic rate, low serum protein. How did it occur? There were two mechanisms, one nervous, the other having to do with vitamin deficiency. If animals were kept on a vitamin-deficient diet changes were found in the adrenals and the pituitary—first congestion, perhaps hyperplasia, ultimately degeneration and atrophy. If that occurred it would explain to some extent the changes which Cushing found in the pituitary in schizophrenia, and possibly those found by Mott. Those who were not very enthusiastic about the endocrines were perfectly entitled to point out that when endocrine stigmata occurred in the psychotic they were by no means of primary importance. But taking the broad view of Dr. Golla, and speaking not so much of mental disorder as of disorder of conduct and emotional instability, anyone who saw a large number of cases of endocrine disorders must come to the conclusion that such disorders did affect emotional and mental behaviour and the fundamental characteristics of the patient. He agreed that the changes would vary according to whether there was an underlying constitutional neuropathic tendency, but one was bound to come to the conclusion that there was a definite association, to be found not only in gross cases, but in lesser ones not regarded as pathological at all.

It was possible, Dr. Simpson continued, that endocrine disorder occurred in nearly everybody. Perfect constitutional balance of the endocrines was found in few. He got a little worried sometimes on going to a dinner party and realizing that 70 per cent. of the guests were suffering from endocrine disorders. The changes were constitutional, familial, sometimes racial. He took as an example two instances of endocrine imbalance, not uncommon, and passing unregarded. One was the woman of post-menopausal age whose pituitary and adrenal cortex had undergone hypertrophy. She became virile, not in the sense of gross hair changes and so forth, but of a different outlook on life, acquiring aggressiveness, originality, fearlessness, becoming the brilliantly capable business woman, the suffragette or her modern equivalent, or, if she retained sufficient of her feminine characteristics, the powerful matriarch of G. B. Stern and other novelists. The other example was the pituitary type of adiposity manifesting itself at adolescence, the young woman, fat in face, neck, and body, good-looking, with a pleasant smile, very popular, nearly always musical, often with a rich mezzo-contralto voice, loving dancing, very light on the feet, engaging in many social activities, very happy and alternatively very sad, recalling in a lesser degree a manic-depressive psychosis. These two types illustrated the influence of the endocrine glands on the emotional and mental make-up and behaviour of people who would not be regarded as abnormal.

THE LUMBO-SACRAL VERTEBRAE AND SCIATICA

The annual meeting of the Devon and Exeter Medico-Chirurgical Society was held on January 28, Mr. A. L. CANDLER occupying the chair in the absence of the newly elected president, Dr. R. H. Norman.

Mr. NORMAN CAPENER reported anatomical and radiological investigations of the movements of the lumbo-sacral spine, with special reference to the mechanical factors underlying sciatica.

He said that with a more detailed study of the mechanics of the region it would probably be found that there were fewer cases to be labelled "idiopathic sciatica." Even the term "sciatic neuritis," in the sense of an infective phenomenon, was less often justified than was usually thought. Mechanical factors must be of greater importance, otherwise one would expect to find the femoral nerve, for example, as often the subject of neuritis. He described the variations in shape of the spinal canal, the intervertebral disks, and foramina in different movements of the lumbar spine as seen in the radiographs of the intervertebral disks, and foramina in different movement possible in the lumbar spine, contrary to the teaching of most anatomists. The intervertebral disk was seen to be markedly affected by such rotatory movements as well as by the usual lateral and antero-posterior movements. The possibility of posterior prolapse of the nucleus pulposus or of the annulus fibrosis was discussed and, after acknowledging the work of Love and Camp at the Mayo Clinic, the following case was shown.

A railway engine-driver, aged 41, "sprained" his back at his work in April, 1935, and a short time later began to suffer severe pain in the right buttock and thigh. The pain was accentuated after exertion, but was relieved by lying down. When first seen in September, 1935, he had typical right-sided sciatica with homolateral scoliosis, rigid lumbar spine, gluteal wasting, and a diminished Achilles reflex. There were no sensory changes. No obvious cause could be found for the sciatica, and the *x*-ray findings were negative. During the next six months he received the usual conservative treatment, including radiant heat, massage, plaster jacket, sciatic nerve stretching, epidural injections, and manipulation under anaesthetic—all without lasting improvement. In the summer of 1936 he had pneumonia, and the sciatica became very much worse. The pain now involved the opposite side, and he was altogether in a very unhappy condition. On October 30, 1936, lumbar puncture at the level of the third and fourth lumbar vertebrae with manometry was performed; the pressure was normal, and there was the usual rise on jugular compression. A needle was now passed into the sacral hiatus as for an epidural injection, and novocain-saline solution was injected into the epidural space. There was a small rise in the intrathecal pressure, but not corresponding to the amount of fluid injected, thus suggesting a partial spinal block. The cerebro-spinal fluid contained 60 mg. per cent. of protein. Two days later 5 c.cm. of lipiodol was injected into the theca at the first lumbar interspace, and radiographs were taken in different positions, recumbent and erect. The evidence obtained by this means strongly suggested a constriction of the theca arising from the front of the canal in the region of the disk between the fourth and fifth lumbar vertebrae. Following the lipiodol examination the patient had very severe pain which had to be relieved by further lumbar puncture. On November 12 laminectomy was performed upon the fourth and fifth lumbar and first sacral

vertebrae. The constriction at the level mentioned was amply confirmed; there was no pulsation below this level, and the posterior projection of the disk was verified. In addition the constriction of the dura appeared to be circumferential in nature. This was widely opened up in the midline; the disk was not interfered with, and the wound was closed. Immediate and complete relief was experienced after recovery from the operation. The man was present at the meeting. All objective evidence of sciatica had disappeared. He reported that since leaving hospital he had been back at his usual work, which occasionally involved coaling the furnace. There had been no suspicion of any return of pain, and he was very enthusiastic about the benefit from the operation.

Mr. Capener illustrated this case with radiological films taken at all stages. He also showed on the screen *x*-ray photographs of the lumbo-sacral spine in support of his contention as to the rotatory movements.

Mr. A. A. GAIRDNER asked if it would be possible to avoid opening the dura, and to remove the obstruction without so doing. Mr. CAPENER agreed in the main with Mr. Gairdner's views, but said that in this particular case it was essential to open the dura in order to let out the lipiodol, and there was the further complication of the constriction. He did not wish to suggest that the elaborate investigations and treatment were likely to be necessary in very many cases of sciatica, but he stressed the point that in intractable cases, particularly where there was a history of violence in the flexed position of the spine, such a course should seriously be considered.

HEPATITIS AND CHOLECYSTITIS

At a meeting of the Liverpool Medical Institution held on February 4, with the president, Professor R. E. KELLY, in the chair, Professor J. W. MCNEE read a paper on the medical treatment of hepatitis and cholecystitis.

Professor McNee dealt first with the definition of "hepatitis," describing it as the response of the liver to injury. He argued that, apart from conditions such as abnormalities and tumours, most of the conditions of hepatic disease described in textbooks under separate names could be united as examples of hepatitis. The pathological process varied from cloudy swelling in fevers, through fatty infiltration or degeneration, to the most severe hepatitis of all—necrosis of the liver cells or of large areas of liver tissue, so-called acute necrosis or yellow atrophy of the liver. Even the condition commonly known as cirrhosis of the liver was readily included as "chronic interstitial hepatitis," analogous with chronic interstitial nephritis. Various factors influenced the effects of hepatitis, whether this was acute or chronic, temporary or severe. The two most important were: first, the great excess of liver tissue over normal needs which nature had provided; and, secondly, the amazing power of regeneration of liver cells, which could resume full functional activity. The essential point in the treatment of all forms of hepatitis was to allow the damaged liver the best chance to regenerate, and glucose was the only support that could be given.

Cholecystitis

Turning to cholecystitis Professor McNee remarked on its commonness and on its infrequent diagnosis in its earliest stages, when medical treatment was of avail. The possibility of catarrhal cholecystitis must be considered in every case of indigestion not due to obvious organic disease of the stomach, such as ulcer, and not responding to simple treatment. The suspicion of cholecystitis was increased if flatulence was a notable symptom. The varieties of cholecystitis were discussed, and a division made between those of more interest to the surgeon and those essentially of medical importance. In discussing the aetiology of cholecystitis three factors were considered: the metabolic, especially as affecting cholesterol metabolism, the infective, and the problem of bile stasis.

A serious difficulty in interpreting the problem of infection was pointed out: was the infection deep in the gall-bladder wall only, as surgeons suggested, or was it in the fluid contents of the gall-bladder? If the former no biliary antiseptics excreted in the bile would be likely to have great therapeutic effect, but only some remedy acting through the blood stream. It was of the utmost importance for the patients that this problem should be satisfactorily solved. Methods of certainty in the diagnosis of catarrhal cholecystitis were discussed, great emphasis being laid on the use of the duodenal tube to obtain samples of bile for microscopical examination.

Finally the medical treatment of cholecystitis by diet, medical drainage, olive oil, magnesium sulphate, and at times by the duodenal tube was discussed, and reference made to prognosis after medical treatment. Once gall-stones had formed no curative medical treatment was possible, but even in such cases much medical treatment might be required before and after operation.

Cholecystography

In the discussion which followed Dr. N. B. CAPON referred to some of the forms of hepatitis seen in childhood, and agreed that glucose was useful in these cases, especially when combined with insulin. Dr. R. E. ROBERTS said that while in certain cases the information obtained from cholecystography was unreliable, in the majority of cases it was more exact than that available from any other source. In a normally functioning gall-bladder or in a frankly non-filling gall-bladder the presumptive evidence in favour of normality or disease of the gall-bladder was very strong. In the case of opaque gall-stones direct radiography might suffice, but in the case of non-opaque gall-stones cholecystography might give incontrovertible evidence. There was, however, a type of gall-bladder in which the results of oral cholecystography were doubtful—namely, the type which filled well, emptied normally, but throughout the examination showed a shadow of subnormal density. It was not at all clear whether the radiologist was justified in regarding such appearances as showing subnormal concentration and being an indication of cholecystitis, or whether they were merely evidence that something was amiss with the absorption of the dye from the bowel and with its subsequent excretion by the liver. So many factors had to be considered in the transit of the dye from the mouth to the gall-bladder that many possibilities in the nature of faulty absorption or elimination might have to be excluded before the diagnosis of cholecystitis was justifiable. Such exclusion seemed at present to be impossible without subsequent resort to intravenous cholecystography.

Diagnosis

Professor HENRY COHEN, while acknowledging the value of duodenal intubation as a diagnostic measure, stressed the importance of correlating the evidence it afforded with that derived from clinical and radiological investigation. Cholecystitis might be the sole manifestation of such lesions as gall-stones or neoplasms in the biliary tract, and its adequate treatment depended on a recognition of the underlying causative factors. Of the value of cholecystography there was no doubt; it was in that Institution that he showed, with Dr. R. E. Roberts, the first series of cholecystographs taken in England, but as a clinician he was alive to its dangers. Pain in the right upper quadrant of the abdomen in the days before cholecystography was an exercise in careful anamnesis. Now too often the mere hint of discomfort in this area associated with slight flatulence led to a radiological examination of the gall-bladder, and if gall-stones were revealed cholecystectomy followed. But gall-stones were not uncommonly symptomless, and their association with certain symptoms might be accidental and not causal.

He had seen the gall-bladder and its contained stones removed for pain, later proved to be due to spinal tumour, caries, carcinoma of the lung, myocardial ischaemia, right pyelectasis, and other morbid conditions in which a careful recognition of the true significance of the patient's symptoms should have pointed to the cause of the pain.

He considered Professor McNee's analogy between liver and kidney infections most helpful, and proposed that it should be carried a step further. Might it not be that some cases of cholangitis and cholecystitis occurred independently of hepatitis, although the liver had excreted the infecting organism, while in other cases the liver itself suffered also from the infection; and might not the infection persist in the gall-bladder after the organism had ceased to be excreted by the liver? If so it was to be expected that some cases of gall-stones with associated cholecystitis would show hepatitis whilst others would not.

The medical treatment of established cholecystitis, apart from the mild catarrhal types which might resolve without any treatment, was still, on the whole, disappointing. Appropriate foods caused biliary drainage as efficiently as concentrated solutions of magnesium sulphate when judged by cholecystography. Massive doses of hexamine often produced gastric and urinary discomforts whatever dose of alkalis was given with them. Professor Cohen doubted if removal of the gall-bladder as a suspected source of focal sepsis was ever justified unless the gall-bladder itself was giving rise to sufficiently severe symptoms, which even in the absence of general toxic disturbances would justify its removal. There was a danger in some centres of the gall-bladder becoming Bernard Shaw's "nuciform sac."

CYSTIC DEGENERATION OF THE ENDOMETRIUM

At a meeting of the North of England Obstetrical and Gynaecological Society held in Manchester on January 22, Professor D. DOUGAL read a note on cystic changes in the endometrium associated with pseudo-mucinous ovarian tumour. He said that in the last few years he had met three such cases, the respective ages of the patients being 58, 60, and 61. The first patient was single, but the others were married and had borne children. Each had a large abdominal cystic tumour and complained of a blood-stained vaginal discharge. In each case a panhysterectomy with removal of the appendages was performed; and in each the tumour was a pseudo-mucinous cystadenoma. In one instance an inoperable carcinoma of the descending colon was also present. On opening each uterus after operation a quantity of blood-stained pseudo-mucinous material was found on the endometrium; it was raised up to form a number of thin-walled cysts. In two cases this was also found in the cervix. Professor Dougal said that although it was possible that some of the pseudo-mucinous material had gravitated through the tubes and formed implants there, this was not supported by microscopical examination. He demonstrated slides showing extreme activity of the endometrium; the cysts appeared to arise from distension of the uterine glands, and not from proliferation of tumour cells. He thought that the endometrial changes were due to attempts on its part to absorb pseudo-mucinous material which had gained entrance to the uterus. If this theory was correct the uterine condition was really a pseudo-myxoma, and comparable with the lesion found in the appendix in some cases of pseudo-myxoma of the ovary.

The PRESIDENT said that he had frequently seen a blood-stained discharge in these cases. Mr. W. R. ADDIS (Manchester) thought it possible that the primary growth might be in the endometrium. Mr. ST. G. WILSON (Liverpool) suggested that the ovary might be producing oestrin, and that this in turn caused an active endometrium. Mr. MALPAS considered it possible that the ovarian cyst was malignant, and the growth in the colon not independent.

Professor DOUGAL, in reply, said he did not think the endometrium was primary, neither did he believe that there was any oestrin production. In his opinion the carcinoma of the colon was quite independent.

Hormone Therapy in Gynaecology

Dr. J. W. A. HUNTER (Manchester) read a note on the results of six months' working of his hormone clinic at St. Mary's Hospital, Manchester. He expressed his indebtedness to his colleagues at the hospital for permission to record the results; it was premature to draw any conclusions, but he hoped the results might be helpful to those who were considering setting up a similar clinic.

During the first six months some ninety patients came to the clinic, most of whom were referred from the out-patient departments. Some of these were deemed unsuitable for treatment. Others had only commenced treatment in the latter weeks, and had therefore not attended long enough, but there remained fifty-two patients who had received sufficient treatment to justify a criticism of the results. The cases treated were: secondary amenorrhoea, 20; sterility or dysmenorrhoea, 6; hypomenorrhoea, 11; menorrhagia of puberty, 4; pruritus vulvae, 5; repeated miscarriage, 3; menorrhagia, 2; and primary amenorrhoea, 1. Of the twenty cases of secondary amenorrhoea fourteen had been temporarily cured—the periods had returned after treatment by varying amounts of intramuscular oestrin—but in only two had the restoration of function been permanent. In four cases treatment in large doses had failed to restore the menstrual flow, a result at variance with those recorded by Kaufmann. In five cases of pruritus vulvae associated with the menopause four had been definitely cured by oestrin therapy. In four cases of adolescent menorrhagia three had been cured by treatment with intramuscular progestin injections. In seventeen cases of scanty menstruation associated with dysmenorrhoea or sterility eleven had shown no improvement with prolonged treatment, and in six there had been some slight increase in the flow. In no instance had the dysmenorrhoea been affected, and no patient suffering from sterility had become pregnant. Three cases of repeated miscarriage had gone to term with progestin treatment associated with the administration of vitamin E. One patient with primary amenorrhoea had been treated with large doses of oestrin without effect, but two cases of menorrhagia in patients 30 years old had much improved under progestin treatment. Dr. Hunter said the preparations he had used were supplied by Messrs. Schering. In the cases of amenorrhoea he had used progynon B oleosum forte; he had found that the smallest dosage necessary in any case to produce a menstrual flow was 300,000 units; the largest amount required in any one case was 1,250,000 units. In the case of menorrhagia of puberty the average monthly dose found necessary to control the menstrual flow was 10 international units. Dr. Hunter added that most of the treatment employed had been replacement therapy, and that little had been done in the direction of activating therapeutically the pituitary hormones. As regards permanent cures the results had been disappointing, with the exception of menopausal pruritus, other climacteric symptoms, and adolescent menorrhagia. The chief criticism of such a clinic was that one tended to be working in the dark with no certain knowledge of the underlying conditions. Cases might be essentially ovarian or primarily due to pituitary deficiency, but, apart from clinical signs, there was no method of establishing a diagnosis. He thought that some help might be obtained by routine estimations of the basal metabolic rate, and also perhaps by estimation of the blood hormone content; but for this a biochemical laboratory and a skilled staff would be necessary. It seemed to him that future progress was only possible along these lines.

Mr. J. E. STACEY (Sheffield) asked whether Dr. Hunter had discovered anything about the time in the cycle at which these hormones should be used. He had seen good results in pruritus vulvae. He thought that many of the effects obtained by substitution therapy were the result of psychological influences. Dr. F. H. LACEY (Manchester) asked whether Dr. Hunter had compared the results in repeated miscarriages with those obtained from anti-syphilitic treatment. His own results in the latter had been very good, and he used the treatment whether the Wassermann reaction was positive or not.

Dr. HUNTER replied that regarding the times of treatment he had used Kaufmann's table. Unfortunately they had not been able to afford the cost of the huge doses used by Kaufmann. In his opinion menstruation tended to continue so long as there was any hormone secreted. He thought that secondary amenorrhoea was due to a sudden cessation of hormone production. His series of repeated miscarriages had not revealed any history of syphilis. In most of his cases there had been a history of scanty menstruation. He believed that diet was a very important factor.

ACUTE ENTERITIS

A discussion on acute enteritis was held by the Fever Hospitals Group of the Society of Medical Officers of Health on January 30, with the vice-president, Dr. H. S. BANKS, in the chair

Dr. ROBERT CRUICKSHANK (North-Western Group Laboratory, L.C.C.) emphasized the necessity of co-operation between the clinician and the pathologist in this condition. Material for examination must be sent to the laboratory at the earliest possible moment, since invading pathogens were rarely found after the third or fourth day, although in dysenteric infections the organisms concerned might persist occasionally for several weeks. If delay was inevitable 30 per cent. glycerin in 0.6 per cent. saline solution should be used as a preservative. The rectal swab should be more frequently employed. The patient's blood should be tested for specific antibodies between the seventh and twenty-first days. Although sometimes entirely negative the presence of specific agglutinins might confirm a diagnosis of Sonne or Flexner dysentery in cases when the stool examinations had proved to be negative; a titre of 1 in 10 to 1 in 20 in the former condition and of 1 in 50 in the latter would be diagnostic in children. Aetiologically infectious and non-infectious dysentery should be differentiated, although it was difficult sometimes to separate these forms on clinical grounds alone. In the first of these the most important infecting organisms were *B. dysenteriae* Flexner and *B. dysenteriae* Sonne; the first was usually associated with a true dysentery or ileocolitis; the second might cause gastro-enteritis or dysentery. The infectivity was often great, and the spread was by human contact or convalescent carriers. Another important cause of infection was by the Salmonella organisms; animals were the main reservoirs of infection, the mouse being a not uncommon carrier of *B. aertrycke* (or *B. typhi murium*). Again *B. paratyphosus* B might be concerned in a gastro-enteritis. The importance of *Staphylococcus aureus* had been stressed particularly by American observers. This infection was often milk-borne, and in the examination of suspected food bacteriologists should always look for this organism. Non-infectious gastro-enteritis might be divided into primary and secondary types, the former being synonymous with "summer diarrhoea" (epidemic enteritis and zymotic enteritis), while the latter occurred as a complication of measles and bronchopneumonia. Summer diarrhoea particularly affected artificially fed infants of the poorer classes during the summer or autumn months; the four factors of artificial feeding, infancy, unhygienic surroundings, and high temperature combining to produce the disease. A raised external or internal temperature affected adversely the gastric and intestinal secretions, so that in infants the initially low gastric acidity tended to be neutralized by the highly buttered cows' milk, and there was interference with the sterilizing mechanism in the stomach and upper part of the intestine. The consequent rising of coliform organisms from the lower bowel up to this virgin soil, associated possibly with bacterial infection of the food, prevented proper digestion, and the general irritative action produced gastro-enteritis. The use of low-buffered acidified foods would probably help in the prevention and treatment of this type of enteritis. It was well to remember that breast-fed infants were almost immune.

Dr. M. MITMAN (Eastern Hospital, L.C.C.) said that in enteric infections in children diarrhoea was the pivotal symptom, but parenteral infections and digestive disorders had to be excluded. Clinical diagnosis might often be difficult, especially in infants in whom the typical syndromes might be replaced by those of gastro-enteritis. The diagnosis of parenteral infections depended upon the detection of the focus, and in the other forms of diarrhoea differentiation was difficult in the absence of bacteriological and serological assistance. The practice at the Eastern Hospital in the past had been to segregate the dysenteries (almost exclusively Sonne infections) and to congregate the remaining cases in an enteritis ward. This heterogeneous group had been discovered to have a mortality rate ten times as high as that for the dysenteries. If, as seemed probable, these cases of enteritis included a number of infections of unknown aetiology it was not justifiable to nurse them side by side in an open ward. It was also illogical to segregate cases of dysentery with a relatively low death rate and to leave other infectious cases with a high mortality together. It was much more important to remove from an open ward a case of diarrhoea with a negative dysentery report than one with a positive finding. In the mixed group the mode of transmission was still uncertain. Infection by ingestion was probably the commonest method, but there was evidence that some, particularly those occurring in winter, resulted in consequence of droplet carriage. This might explain the frequency of middle-ear and respiratory infections in some outbreaks of diarrhoea. It was proposed to treat in future all cases at the Eastern Hospital by a combined cell and diet-kitchen technique. Every case of enteritis, whether primary or secondary to other infections such as measles and whooping-cough, was to be considered as a separate infection from every other case. Patients were to be nursed in separate cells. Feeds were to be prepared in a special milk room by gowned, masked, and gloved nurses, employing an aseptic technique. After use bottles and teats were to be sterilized in a special sterilizer in the kitchen, and passed through a hatch into a drying chamber in the milk room. Scrupulous care was to be taken in the disposal of excreta. Destructible squares were to be used when possible. Sluicing of foul linen was to be avoided as far as possible; if unavoidable the nurse concerned would wear a rubber apron, gloves, and goloshes, and would be forbidden to enter the milk room. By these measures it was hoped to minimize cross-infection in enteritis.

A Clinico-pathological Classification

Dr. DAVID HALER agreed with the two previous speakers, but thought that his own views otherwise were heterodox to some extent. He favoured a clinico-pathological classification, based upon the clinical examination of the child and a careful bacteriological investigation of the stools. Following a scheme set out in a paper read before the Edinburgh conference of the Royal Institute of Public Health last year, he distinguished four groups. In the first there was a high mortality rate, but no abnormality in the stools apart from their frequency. The child was overwhelmed by a severe toxaemia, or perhaps septicaemia. The normal ratio of coliform to lactic acid

bacilli was maintained as estimated by direct films. Cultures showed no abnormality. In the second group there was a rather lower mortality rate; the disease was less acute and was associated with focal sepsis. The cardinal finding was a reduction in the lactic acid to coliform bacillary ratio. The third group was a complex one; in it the infection was associated with cocci or bacilli actually attacking the gut, and it comprised the usual enteral infections. The stools usually contained pus and blood. The fourth group was associated with depression of the general bodily resistance by other diseases and the invasion of the gut by proteiform bacilli. The prognosis in the third group was very good relatively, while in the fourth group it depended on the associated diseases. Groups 1 and 2 were truly parenteral; group 3 and its subdivisions were enteral; and group 4 was secondarily enteral in character. Dr. Haler emphasized the extremely high infectivity of the true dysenteries and their relatively low mortality.

Dr. A. JOE (North-Western Hospital, L.C.C.) stated that he proposed to use the method of cell isolation, including steps designed to exclude the possibility of droplet infection. Those present, including himself, would probably be somewhat unwilling to abandon the hypothesis of manual infection in explaining the spread of these diseases, but the work of W. F. Wells in America, if confirmed, would reopen the whole question of air-borne infection and introduce a new conception of this method of spread. Under experimental conditions Wells had shown that intestinal organisms had maintained their viability in air currents when attached to droplet nuclei, and these might account for such a rapidly spreading outbreak as had been already described in Bristol by Parry and Peters. He himself had had one such experience, but had been unable to exclude the possibility of food contamination by a ward maid who had had an acute attack of diarrhoea three weeks before the outbreak; this attack had not been disclosed until a rapid succession of cases of Sonne dysentery had caused the fullest inquiries to be made.

Dr. J. S. ANDERSON (Grove Hospital, L.C.C.) agreed that it was important to decide whether diarrhoea was infectious. Since it was sometimes impossible to differentiate, every case of diarrhoea should be isolated as being potentially infectious. He mentioned an outbreak of twelve cases of Sonne dysentery, among which was that of a child 10 months old, to whom attention had been drawn by the passage of one green motion without there being any other signs or symptoms. That green motion had been found to contain the Sonne bacillus. He stressed the need of paying more attention to the anal toilet in children's wards, and of the staff reporting even the slightest attacks of diarrhoea in themselves.

Dr. D. S. SUTHERLAND (Manchester), recalling war experiences, suggested that amoebae might be the cause of recurrent diarrhoeal attacks in this country. A mild but highly infectious outbreak of dysentery had occurred during October to December in Monsall Hospital, the cases being mainly confined to two wards, though occasional cases had appeared in others. Of the forty-five cases forty-one involved patients and four were in nurses. There were no deaths or severe illnesses; the main feature was the occurrence of frequent, relaxed, and offensive stools. In thirty-one cases mucus was present in them, and in eighteen there were blood streaks, though no altered blood. The organism isolated was of the Sonne type, and the original source was not detected. Dr. Sutherland was inclined to think that as regards the source of such outbreaks the organization of the hospital kitchen was an important factor. In the storage of food, dust originating from earth attached to unprepared vegetables might easily infect the food supply, and he stressed the necessity of completely separating the preparation of food, particularly vegetables, from its cooking. It was important to ensure that minced meat was used up on the day of cooking and not added to the next day's supply.

ASSESSMENT OF DISABILITY IN MINERS' NYSTAGMUS

The proposition "That the institution of medical boards would be an advance on single referees in cases of miners' nystagmus" was debated at a recent meeting of the North of England Ophthalmological Society held at Leeds. The feeling of the meeting was against the proposition, which was lost by a large majority.

In Favour of Medical Boards

Mr. HERBERT CAIGER of Sheffield, the principal speaker in support of the motion, pointed out certain basic facts to be borne in mind in connexion with miners' nystagmus. The great majority of miners working at the coal face were affected by it as they grew older, but they were not disabled, and many were quite unconscious of the oscillations of the eyes and had none of the associated symptoms. Only a small minority were seriously disabled and a few completely and distressingly disabled. There was no generally recognized and satisfactory method of readily distinguishing the serious cases from the others, and the ophthalmic medical referee was presented with a problem of great difficulty. The leading symptom—oscillation of the eyes—came, it was true, within the province of the ophthalmic surgeon, but in many cases the disabling symptoms were dizziness, headache, or other troubles which the physician was better qualified to assess, and yet, even when oscillations of the eyes were absent, it had been the custom to refer these cases to the ophthalmic referee. The decisive factor which determined the question of disablement was not the presence of oscillations but the failure of the nerve centres concerned to inhibit their disabling consequences. The problem was a neurological, not an ophthalmic, one, and the case was clearly one calling for team work, with the ophthalmic surgeon and the physician bearing a more or less equal share of responsibility. He sketched the points which would come within the province respectively of the ophthalmic examiner and of the physician. In diagnosing the presence of the disease the chief responsibility seemed to fall upon the ophthalmic surgeon, but in assessing the disablement the physician should have at least an equal voice. He also referred to the considerable dissatisfaction with regard to single referees chiefly owing to the diversity of opinion. In one district the referee would certify as fit for work at the coal face men who still showed oscillations, and in another the referee would take the view that a man who had once had nystagmus should never return to the face, however complete his recovery. A single ophthalmic referee's decision ought not to be final and without appeal. A system similar to the medical boards that regulated pensions after the war would restore public confidence.

In Favour of the Single Referee

The motion was opposed by Mr. JOHN FOSTER of Leeds, who said that the question had arisen because miners were aggrieved that re-employment had been refused to men with an idiosyncrasy to nystagmus and light work refused to men who were recovering. Both these matters were outside the sphere of the medical profession. There was also dissatisfaction with the view of individual referees. The estimation of disability in this disease was unquestionably very difficult because of the variability of the signs of the disease from time to time in the man affected, the fact that every other miner over the age of 50 had oscillations without incapacity, and that nystagmus might produce a neurosis which disabled a man long after the oscillations had disappeared. All this allowed for a great many shades of opinion, and it was often the case that referees might disagree with the usual finding of judges in their area. If the proposed committee were formed of whom would it consist? A psychiatrist would probably be the first choice, but he suspected the psychiatrist would merely develop his own formulae for the disability, or perhaps not alter them at all. A physician would be added for his opinion on the arteriosclerotic aspect of

these ageing men, but the ophthalmologist's knowledge of giddiness arising from cerebral arteriosclerosis was as good as a physician's, and he was able to detect its first sign (in the fundus) with greater accuracy. If a physician were added to such a committee he was bound to dominate it. The training of an ophthalmic surgeon put him at a disadvantage where there was a gross difference between signs and symptoms. Miners' nystagmus was the only disease in which the ophthalmic surgeon was an expert in dealing with this divergence. But the whole of the specialist physician's training was devoted to this particular type of explanation, and the ophthalmic surgeon would soon find himself in a secondary position. The next debate—if this were handed over to a board—would be one in which physicians would decide whether ophthalmic surgeons need see these cases at all. The board would presumably include other oculists, which would certainly diffuse the odium of an unpopular decision and be in line with the present demand for impersonal judgements on all sorts of matters; but it did not follow that the opinion of a committee of oculists was necessarily sounder than that of an individual. As matters stood, the ophthalmic referee could have a second (physician's) opinion in any particular case on a letter to the Home Office.

As already stated, the general feeling of the meeting was against a board or committee. The question is one which is now being considered by the Departmental Committee on Miners' Nystagmus.

SUBCLAVIAN ANEURYSM

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on February 5, with the president, Mr. A. A. MCCONNELL, in the chair, Mr. C. J. MCAULEY showed two cases.

Mr. McAuley said the first case was a female patient, who in 1933 had suddenly developed pain and pulsation in her right arm. In due course there was loss of power. A swelling about the size of an egg could be seen above the right clavicle, there was no bruit, the blood Wassermann was negative, and *x*-ray showed the heart to be quite normal; the radial pulse could not be felt. The swelling proved to be a subclavian aneurysm, and was treated by ligature of the innominate artery after removal of the right half of the manubrium sterni. The carotid was not ligatured. Mr. McAuley stated that there were only about sixty cases of this condition on record, and of these three had been successfully operated upon in Dublin. Mr. J. J. FITZSIMONS said that it was very interesting to see a fusiform aneurysm of a non-specific nature. The case showed that good surgery depended to a large extent on sufficient exposure.

Thrombo-angiitis Obliterans

Mr. MCAULEY also showed a case of thrombo-angiitis obliterans. The patient, a man of 36, said that in 1934 his right foot began to feel cold and numb in the morning; later it became extremely painful. He also felt numbness of two or three fingers of his right hand when swimming. He was admitted to hospital in 1935, when no pulse could be felt in the right radial artery nor in either anterior or posterior tibial arteries. He improved somewhat after treatment, but returned in 1936, when the condition had become very much worse and the big toe showed signs of gangrene. Lumbar sympathectomy was performed, and after removal of the big toe the gangrene did not progress and the temperature of his foot came back to normal. The PRESIDENT referred to the very rapid onset of the condition in this case. He asked if there was any effect from the injection of novocain into the posterior tibial nerve. Mr. J. J. FITZSIMONS asked, was it not very unusual for spasms to occur in the upper and lower limbs at the same time? To him the case would rather suggest a type of Raynaud's disease. Mr. T. A. BOUCHIER-HAYES referred to two cases of this disease which he had recently seen. He asked if a vasomotor index had been taken in the present case. Mr. F. J. MORRIN said that no one could state what were the indications for treatment in this case, since its cause was not known. Efforts at treatment were directed to enhancing the collateral circulation. It had not been definitely established that operation on nerves was the ideal treatment. Mr. A. B. CLERY asked if spinal anaesthesia had been tried in this case, as it was supposed to give a good indication as to the probable resu't of sympathectomy. He referred to a recent paper in which cases were described which had been treated by excision of the tibial nerves. Professor W. J. JESSOP asked how the skin temperature had been taken. It was said that the only really accurate way of doing this was by the electric method, which was very troublesome. He had used the test mentioned by Mr. Clery, giving the patient a spinal anaesthetic and afterwards taking the temperatures in the healthy and diseased limbs. Dr. E. HARVEY said that tobacco had been suggested as a possible cause of the disease, and, although this idea had now been given up, it was interesting to note that the present patient was a very heavy smoker. Mr. J. C. FLOOD asked what was Mr. McAuley's view regarding prognosis. He thought a diagnosis was very difficult to establish, and said that skin thermometers of any sort had been proved to be rather unreliable. He suggested the giving of acetylcholine in the early stages. Mr. MCAULEY, in reply, said that it was very difficult to know what one could promise in the way of prognosis. Injections of novocain had no effect whatever. He felt that the case was definitely not one of Raynaud's disease.

Local News

SCOTLAND

Carnegie Trust for the Scottish Universities

At the annual meeting of the Carnegie Trust, held on February 10, it was stated that an unusual feature had been the exceptional number of resignations of Fellows and Scholars due to appointments. Out of thirty-two Fellows and Scholars in organic and physical chemistry nearly one-half had resigned, and it was believed that this was due to the revival of prosperity in the chemical industries. The report of the superintendent of the laboratory of the Royal College of Physicians of Edinburgh, a laboratory largely financed by the Trust, shows that during 1935–6 sixteen workers were engaged in medical research within the laboratory. Sir H. Arthur Rose, chairman of the Trust, stated that in the past year 3,735 students received sums amounting to £56,279 in respect of tuition fees, or 41.72 per cent. of the funds available. He believed that this was a fair proportion as between the main objects of the Trust, which were the payment of fees for necessitous students, the support of the universities, and the encouragement of research. The capital sum allocated in grants to universities and extramural institutions was £45,460, or 33.68 per cent. of the total, while research accounted for £19,000, or 14.14 per cent. Lord Macmillan, referring to what had been done by the Trust to improve the general condition of students, said that people interested in education now seemed to be chiefly concerned over nutrition and physical exercises. While it was very desirable that students should be physically fit, there was a danger that we might fuss a little too much over the physical condition of young men and women. He intended this merely as a word of warning, and not in any way in derogation of the schemes now so widely advertised. The Trust had been doing a good deal in support of the students' unions, which

formed a very important feature of Scottish university life, and attention had also been paid to the physical aspect by aiding provision for athletics.

Edinburgh Dental Students

The Edinburgh Dental Students Society held its annual clinical at-home on February 5. This included an address by Dr. Sydney Blackman, radiologist to the Royal Dental Hospital, London, on "Dental Radiography," and various demonstrations dealing with aspects of dental work. At a luncheon it was decided to form a National Dental Students Society of Great Britain to be carried on under a regional system with centres in Edinburgh, Leeds, and at Guy's Hospital in London. The objects of the society will be to facilitate intercourse among dental students throughout the country in the interests of dental science and also of their own welfare, and it was agreed that conferences of the new body should be held every two years. At a dinner held in the Roxburghe Hotel Mr. A. C. W. Hutchinson, dean of the Edinburgh Dental School, replying to the toast of this school, said that in 1892 there were only thirty students, but to-day there were 260 on the roll, and the work of the hospital had increased correspondingly. Some parts of the hospital and school were badly in need of renovation, and reconstruction was to be undertaken accordingly. Professor Sydney Smith, dean of the Faculty of Medicine at Edinburgh University, proposing the toast of "The Edinburgh Dental Students Society," said that this was the oldest society of dental students in the British Empire. Fifty years ago it had consisted of twenty members, but now the membership exceeded 150. The society was second in size to that of Guy's Hospital, but it might still be extended. Mr. T. L. White, president of the society, in replying, said that one of its latest achievements had been to secure, with the co-operation of the board of governors, a sports ground and pavilion on the outskirts of Edinburgh.

ENGLAND AND WALES

Recreational and Athletic Gymnastics

A gymnastic demonstration organized by the English Gymnastic Society (founded in 1934 to further the interests of recreational gymnastics in England) was given at the Albert Hall, London, on February 6. In addition to a display by a team of English women, a party of Danish men—farmers in everyday life and leaders of village gymnastic classes in Denmark—under the leadership of Mr. Niels Bukh, from the Gymnastic High School, Ollerup, carried out a series of exercises in a faultless manner. Mr. Niels Bukh has created a new method known as Danish primary gymnastics, a modification of Ling, which has influenced the gymnastic teaching for men in a number of countries. It was stated that since 1920 the courses at Ollerup have been taken by 5,000 women and 4,000 men leaders. The women, who gave an equally effective demonstration under the leadership of Miss Gladys Wright, have been members of weekly gymnastic classes arranged by the English Gymnastic Society. Their training has been based upon the principles of the Swedish system, following the Elli Björksten modern method of gymnastics for women, adapted to suit conditions in England. Those who took part were London professional and business women, their ages ranging from 19 to 47. They accomplished many difficult exercises with precision, and gave a very graceful exhibition of the rhythm of movement. Lord Dawson in a short speech said that the British people were bad starters but good stickers, and now that the need for physical education had been brought home he was sure that, with their customary ability to adjust themselves to new situations, they would quickly make up any leeway. One reason why physical fitness was more important to-day than ever before was the declining birth rate, which meant that quality was becoming more important, and quality was not to be attained without planning. Another reason was the constant urbanizing of the population, with the need for compensating for the ill effects of the cramped life in towns. Then industry was constantly becoming more specialized, which meant that there was a tendency for the over-use of one part of the body and the under-use of the body as a whole. He pointed out the rhythm, the balance, and the ease of the gymnastic movements the audience had witnessed, and said that physical culture trained not only body but mind, enabling those who undertook it to be more understanding, receptive, and adaptable, fortifying them also against the storms of life. He welcomed warmly the Danish guests. Mr. Niels Bukh, he said, was a genius who had sprung from the Danish countryside, and not only a genius but a man of purpose and determination, a prophet who had shown the people of his country that health and happiness were within their reach through physical training. But Denmark must not be allowed to monopolize Niels Bukh; he was a leader whose influence had extended to many lands. The Danish Minister also addressed the gathering, referring to the many ties between his country and England.

Manchester Royal Infirmary

Sir Walter Cobbett in his address as chairman at the annual general meeting of the Manchester Royal Infirmary on February 12 protested vigorously against the proposal of the Ministry of Labour and the Office of Works to erect a large labour exchange which will overshadow the Infirmary's central branch in Roby Street. This branch, which relieves the Infirmary of twenty urgent surgical cases each week, has fifty-four beds. It seems that the proposed labour exchange will restrict the access of light and air to the wards and render them completely unsuitable for the present purpose. The financial burden of replacing these fifty to sixty beds will be considerable, expecially in view of the deficit of £23,812 on the last year's working, which brings the total of the Infirmary's debt up to £79,817. The *Manchester Guardian* describes the proposal to build the new labour exchange alongside the Roby Street Branch as "a piece of thoughtless bureaucracy."

Deep X-Ray Department at Samaritan Hospital

A new department for deep *x*-ray therapy, costing £8,000 and fully paid for, was opened by Viscount Dawson of Penn at the Samaritan Hospital, Marylebone Road, London, on February 12. Dr. A. W. Oxford, chairman of the hospital, presided over the ceremony. Sir Ewen Maclean, president of the British College of Obstetricians and Gynaecologists, in a few preliminary remarks, referred to the spirit of progress which had always characterized the Samaritan. In gynaecology the special hospitals, and the Samaritan in particular, had been pacemakers to the London hospitals in general. This was true of the Samaritan alike in respect to its surgery and to its nursing, and this new radiological department was another instance of its enterprise. No radiological department to-day could claim to be fully equipped if it did not include an installation for deep therapy. There was a large class of cases—benign chiefly—which could be treated better by *x*-ray therapy than by radium, and another large class in which radium treatment was quite properly given in the first instance but was supplemented by *x*-ray treatment. Both these agents in unskilled hands could be extremely dangerous, but rightly used any ensuing morbidity or ill result was likely to be less marked with *x*-ray therapy than with radium. Deep *x*-ray therapy should certainly be available, either as an adjunct to radium or, in some cases, as a substitute for it.

Viscount Dawson of Penn, in declaring the department open, said that the Samaritan Hospital, now approaching its centenary, had been remarkable for its enterprise and courage all through its history. He mentioned some of the great surgeons and gynaecologists who had been

associated with it, especially Spencer Wells, its surgeon for twenty years and afterwards consulting surgeon, whose tradition, he said, lived on at the Samaritan. Medicine and surgery were making great strides. Lack of advertisement must not be taken to mean lack of achievement. By tradition in this country the profession did not rush into print or blow its own trumpet on every occasion. It made progress through a wise restraint, and anything like premature publicity within the profession was decried. Only when a discovery was sufficiently advanced was it announced, and then it was submitted by the discoverer to his colleagues in the profession for their criticism. Such caution and prudence in the long run was for the good of the public, otherwise the public would be constantly made the prey of false hopes. He congratulated the Samaritan on its enterprise in putting in the new installation to forward what was now becoming an established method of treatment. The vote of thanks to Lord Dawson was proposed and seconded respectively by Mr. William Gilliatt and Dr. Russell Reynolds.

Medical Treatment of London School Children

The arrangements of the London County Council for the medical and dental treatment of school children for the year beginning April 1 next follow the proposals generally approved for the present year. Further provision is to be made, however, for the treatment of cases of squint, including the additional employment of orthoptists working under the supervision of ophthalmic surgeons. For the treatment of minor ailments an additional centre is to be opened in a Council school at Balham. This centre will also be utilized as an extra one for the supervision of children suffering from rheumatic affections. During the present year the age group 11 years has been included in the arrangements for dental inspection. It is now proposed that school entrants and leavers shall be included, which will complete the arrangements for the inspection of children by the dentists, as contemplated by the three-year programme. The Council will also enter into arrangements, where metropolitan borough councils so desire, for the medical inspection and treatment at school treatment centres of children under the age for compulsory attendance at school provided that the borough councils concerned are prepared to reimburse the Council the actual cost of treatment. A grant of £400 is to be made to the London Child Guidance Clinic. The cost of the arrangements for medical and dental treatment for 1937–8, apart from administrative charges, will be £123,308, an increase of about £3,000 compared with the estimate for the current year.

H. Herscovici (*Thèse Paris*, 1936, No. 806), who records seven illustrative cases, states that the frequency of occupational chancres in doctors and medical students is greater than might be supposed, as most of the cases occur in private practice, and a considerable proportion of them are not recorded. Syphilologists are not affected more often than other specialists, but it is rather the obstetricians and oto-rhino-laryngologists who pay the heaviest tribute. The commonest localization for the professional chancre is the hand, the index and middle fingers and the thumb being most often affected. The next most important localization is the conjunctiva. The true nature of the occupational chancre is often not recognized, as it assumes the appearance of a banal affection such as a whitlow or ordinary conjunctivitis. The difficulties in diagnosing occupational chancres are the same as in detecting other extragenital chancres, the true nature of which is often not recognized until the secondary stage. The prognosis is no worse than that of other syphilitic chancres. Prophylaxis is of the utmost importance, and should be carried out by wearing gloves, careful disinfection of the hands, and protection of the eyes by spectacles during examination of the nose and throat.

Correspondence

An Oxygen Tent Service

SIR,—Rather over a year ago the British Red Cross Society deposited in each of the twelve teaching hospitals of London an oxygen tent of the Guy's Hospital pattern, so that a wide experience of this method of treatment might be gained. We who were appointed as a small medical advisory committee would in the first place like to thank the society for their public-spirited action, the value of which is indicated by the reports received from the various hospitals. All these reports emphasize the value of the oxygen tent in the treatment of grave cases of anoxaemia.

One of these reports, that from St. Bartholomew's by Dr. Reavell, has already been published (*Lancet*, 1936, **2**, 250), and we may quote his statement that from the clinical point of view the results were better than with any previous method of oxygen administration, and patients were kept in the tent continuously for periods up to twelve days without any difficulty. A report from another hospital emphasized its value in the treatment of children suffering from bronchiolitis or bronchopneumonia; "once in the oxygen tent these small children appear to resent being taken out [this point was also observed at another hospital], and there is no question that this apparatus is highly successful and almost the only method of achieving the results attempted." In another hospital a child who had had one lung removed by operation was in the tent for a considerable time, and the treatment proved of the greatest benefit. Another report describes a girl, aged 11 months, whose colour improved and who appeared much happier within about half an hour of entering the tent; the pulse rate and the respiration rate fell, and the child made a good recovery. Another patient, aged 65, with chronic bronchitis and asthma, strongly objected to the tent when it was first used for him; but was later readmitted to hospital very cyanosed and dyspnoeic, and almost moribund. This time he felt so much better in the tent that he willingly persisted with it, and made a remarkable recovery after some four days. Later he did not remember ever having been in the tent at all. It is perhaps unnecessary to multiply instances of the beneficial effect of a treatment which merely ensures that the patient is getting a known high percentage of oxygen.

When the details of managing the patient are considered it is perhaps natural that there should be some difference of opinion. Dr. Reavell stated that the tent could be set up and new people instructed in its management in two hours; when once running no undue call was made upon the house-physician, and apart from general supervision by the house-physician it could be managed entirely by the ward clerks and nurses; when once the sister and nurses had become accustomed to the tent it was little or no hindrance to general nursing. Another report says that "the oxygen control presents no difficulty, and a concentration of 50 per cent. could easily be obtained and maintained. The gas analyses, of which oxygen is the most important, can easily be carried out, and can soon be taught to sisters and nurses." In one hospital it was noted that the tent could be used satisfactorily for surgical cases; but in another hospital the nursing of these cases in the tent was found to be extremely difficult. Several reports emphasized the difficulty of controlling delirious and fractious patients in the tent. This difficulty is common to all methods of oxygen administration.

Some criticisms of the details of the manufacture of the tent were expressed; but this is perhaps not surprising considering that it was the first time that this particular type of tent had been made up in quantity in this country, and the firm employed had had no previous experience of this kind of work. The chief criticism is the flimsiness of the material, so that a stronger and more substantial material is now being used in all the tents that are being made at present.

The Red Cross Society offered the tent to the hospitals for purchase at a little under half their original cost, and seven of the hospitals accepted this offer. It may perhaps cause surprise that this offer was not accepted by five of the hospitals; but in four cases the refusals are thought to be due to certain technical imperfections in the tent, or to a preference for a tent of another type or some simpler method. In the remaining hospital the patients who had been ill enough to require this treatment were so few that it was felt that for the time being a tent could be hired when desired, and that an improved model might be forthcoming later.

A final word may be said about the action taken by the London County Council, which controls a very large number of beds. For about a year now they have had twelve tents in operation, and are hoping to increase the number so that each general hospital and each fever hospital will have at least one tent.

In our previous letter we stated that arrangements had been made by one of us to send a tent to any part of the country at the request of any medical man, and that a physicist, not medically qualified, would accompany the tent. The demands on this "Oxygen Tent Service" have steadily increased during the year, so that it has now been possible for it to launch out on its own account as an independent concern. Applications should now be made to T. W. Adams, A.Inst.P., "Oxygen Tent Service," 33, Devonshire Street, W.1 (telephone number Welbeck 2003, and at night Gerrards Cross 1163). This service, which supplies British-made tents, together with the two other services in London, which supply American tents, should be sufficient to meet all the demands for this particular type of treatment at the present time.—We are, etc.,

REGINALD HILTON.
W. J. PEARSON.
E. P. POULTON.

London, W., Feb. 12.

Specific Antitoxins for Gonococcal and Meningococcal Infections

SIR,—The careful and critical observations recorded by Dr. T. Anwyl-Davies in the *Journal* of February 13 (p. 321) on the treatment of cases of gonorrhoea during the past three years with antitoxic serum leave little room for doubt that we are witnessing the first stage of a definite practical advance, long overdue, in the specific therapy of gonococcal infection. I feel sure that Dr. Mellanby will agree with me that the credit for this important achievement is due primarily to Dr. Anwyl-Davies himself, to Messrs. Parke Davis, whose London representative, Dr. Stanley White, has co-operated with him whole-heartedly in the work, and to Dr. Ferry, who has prepared the serum by the method that he himself devised for the preparation of similar antitoxic serum for cases infected by that closely related organism the meningococcus.

But with your permission, Sir, I would like to point out that in your editorial comments on this paper there is an oversight. The starting-point of this valuable work on the gonococcus was not the studies of Corbus and his colleagues in America, but, as Dr. Anwyl-Davies generously and specifically states at the beginning of his paper, the striking success obtained in this country during the war in the treatment of military cases of cerebro-spinal fever with serum definitely capable of neutralizing the intracellular toxin of the meningococcus. The manner in which this close association between the anti-endotoxic capacity of the serum and its therapeutic potency came to notice was as follows:

Although large supplies of anti-meningococcus serum were available and its use in military cases compulsory, the mortality among troops in training in this country during the winter of 1914–15 who contracted cerebro-spinal fever was approximately 50 per cent., and many able clinicians considered the serum valueless. When the disease recrudesced during the following winter (1915–16) while the death rate in cases among the general military population remained at 50 per cent., the late Martin Flack and his clinical colleagues in the London district by employing a particular batch of serum succeeded in reducing the mortality to 18.5 per cent. Comparison of this clinically potent serum with other batches of serum that had proved inert when given clinically showed that the former alone was capable of neutralizing the endotoxins of the two most prevalent types of the meningococcus. The other antibodies paraded then and now in orthodox textbooks—agglutinin, opsonin, complement-fixing antibodies, and lysin—were apparently useless, as several of the "dud" sera contained them in fair abundance. At this point the batch of clinically potent serum ran out and the mortality in the London district began to mount. Clinicians were in despair, because in contrast with their previous experience the serum supplied had no effect. The secret of the potency of the good serum, however, had come to light. Twenty batches of serum were in store, and it was found that while eighteen of them were inert two possessed definitely anti-endotoxic capacity. Some of this antitoxic serum was at once sent to the special hospital for treating military cases of cerebro-spinal fever in the London district, with the result that their patients forthwith began to improve and the mortality for the season fell to 15 per cent.

As it was found that the makers of these batches of antitoxic serum had meantime supplied batches devoid of that property it was clear that if the best therapeutic results were to be secured the preparation and standardization of the serum must be undertaken at the Central Laboratory. The War Office and the Medical Research Council gave every possible help, and Dr. Stanley Griffith of the Cambridge Field Laboratories undertook the preparation of the serum. The Army Veterinary Department provided excellent horses and fodder. Monotypical sera were prepared, and no serum was sent for trial clinically unless it had been proved at the Central Laboratory to contain anti-endotoxin for the particular meningococcus type concerned. A pooled serum was put up for use in cases before the type of coccus at work had been determined. The results exceeded all expectations. The gross mortality among troops contracting cerebro-spinal fever fell to 35 per cent. when the case mortality from the same disease among men of a similar age group in the civilian community remained at 58 to 60 per cent. as in previous years. The chief success, however, was in cases infected by Type I, the chief epidemic strain of the meningococcus then and since, and apparently the most fatal one. Out of sixty-five cases due to Type I, of which forty-eight were regarded by experienced clinicians as fulminating, severe, or very severe, no fewer than fifty-nine recovered. The serum, moreover, was clearly antitoxic in its action, for the clinicians frequently observed striking and definite improvement in the condition of their patients within half an hour of its administration.

In view of this experience, which has since been confirmed by similar experience when testing specimens of serum for use at Aldershot during the meningitis outbreak of 1931, I have no doubt at all that in case of meningococcus infection the chief antibody requisite for clinical potency is anti-endotoxin. Owing to the close similarity between gonococcus and meningococcus it seemed more than likely that cases infected by the former would also respond to treatment by antitoxic serum in the same way. Dr. Anwyl-Davies has now shown that this is the case.

With some of the other remarks in your annotation, Sir, I am in the fullest agreement.

The anti-meningococcus serum referred to above was standardized by collecting strains of the meningococcus as soon as possible after isolation from cerebro-spinal fluid. Their pathogenicity for mice by intraperitoneal injection was then compared and the most toxic selected. Several hundred plate cultures were made from the most active strains, and after incubation overnight at 37° C. the growth of each was scraped off in a minimum amount of saline, examined microscopically, and then pooled. The bodies of the meningococci were then concentrated by centrifuge, the supernatant fluid discarded, and the deposit dried in Petri dishes in a vacuum desiccator overnight at 37° C. Next morning the brown flakes of the dried meningococci were scraped off and powdered. Approximately 2 mg. of this powder was found to be fatal to mice on intraperitoneal injection. For testing a number of specimens of serum an extract was made by grinding up the dried and powdered bodies of the meningococci in distilled water to which N/40 NaOH had been added in order to dissolve the powder. Two milligrammes of the powder, or 0.1 to 0.2 c.cm. of the solution of the bodies, were next put out into a number of watch-glasses; 0.5 c.cm. of normal serum was added to each of the first pair, and a similar amount of each of the serum specimens for test to remaining pairs of watch-glasses containing the endotoxin. The watch-glasses were incubated at 37° C. for half an hour to allow the serum to neutralize the toxin, and then the contents of each were injected intraperitoneally into a mouse. The next morning the control pair of mice were moribund or dead, and the same thing happened to the remaining mice unless the serum contained anti-endotoxin, in which case the mice appeared to be unaffected. Many hundred specimens of serum were tested in this way, and although most batches of serum were rejected the clinical results obtained with serum standardized in this way proved the soundness of the method. Further details are given in the official *Medical History of the War* and in Report No. 50 of the Medical Research Council.

I agree with you, Sir, that it is far more likely that this toxin obtained by Ferry by filtering young cultures of either meningococcus or gonococcus is an endotoxin than that it is an exotoxin. Unlike true exotoxins, such as those of diphtheria and tetanus, the endotoxin of the meningococcus is remarkably thermostable, and even stands boiling for thirty minutes, as pointed out in the Medical Research Council report referred to. Both meningococcus and gonococcus autolyse very rapidly, so that in fluid cultures one would expect that their intracellular toxin must be quickly liberated.

Finally, I would add that it seems to me to be a great pity that in this country we have no State Serum Institute where problems of this kind of great practical importance to the community can be continuously investigated. Advances in specific serum therapy are too urgently wanted to be left to the initiative of individual firms, however enterprising and progressive. But if it is to prove a success such an institute must be in close touch with both laboratory workers and actual cases. For that reason it is worth considering whether the institute should not form part of a hospital or group of hospitals. It should certainly not be isolated, or little practical progress can be expected. A farm would be required where the horses could be kept, and care should be taken to see that the main object should be not the routine testing of serum specimens but the advancement of knowledge by experiment so that clinical improvement can be obtained in cases where the infecting organism is known but specific therapy is at present either ineffective or unavailable. Unlike meningococcal meningitis, which is comparatively rare, gonococcal infection is so constant and ubiquitous, and the injury caused by it so widespread, that the public importance of improvement in its specific therapy can hardly be overestimated.—I am, etc.,

St. Bartholomew's Hospital, Feb. 14. M. H. GORDON.

SIR,—The extremely interesting paper by Dr. T. Anwyl-Davies in your issue of February 13 may well prove to be a landmark in the long history of gonorrhoea if his clinical results are in due course confirmed. Your annotator refrains from discussing these results, but directs some criticism at the theory that the serum with which they have been produced is an antitoxin. I am aware that pathologists in this country have not been able to confirm fully Ferry's work on the production of exotoxin from the meningococcus and the corresponding antitoxin. I am not qualified to discuss the pathological aspect, but in view of Dr. Anwyl-Davies's striking clinical results with the so-called gonococcus antitoxin it may be opportune to state briefly my own experience to date with the corresponding "meningococcus antitoxin" in cerebro-spinal fever. Elsewhere I have given some account of this (*Lancet*, 1935, **1**, 856). I can now summarize the results of cases treated during the last three years (1934–6). In order to evaluate the effect of this treatment in the acute stage I must exclude the following:

(*a*) Three cases recovering on admission; (*b*) one case dying within six hours of admission; (*c*) four cases admitted late in the chronic stage with permanent paralysis (three were infants in the stage of post-basic meningitis); (*d*) three successive cases treated with a batch of serum which had been faultily stored for over six months in summer, and which was, according to its agglutination reactions, inert; (*e*) one case proved at necropsy to have died from cisternal haemorrhage, the meningitis having cleared up; (*f*) one case fatal from pneumococcal meningitis some weeks after recovery from the meningococcal meningitis.

There remain twenty-five patients, of whom twenty-four recovered. Even the one fatal case recovered from the primary attack—it was a relapse that was fatal. Not a single case failed to respond, and respond rapidly, in the primary acute stage; none of them entered the chronic stage. There was only one relapse. The only complications were two cases with transitory paresis and one with permanent deafness. A large proportion of these cases were very acute, all memory of events being blotted out for several days. All cases were bacteriologically verified and all but three were typed—namely, Group I (fifteen); Group II (five); inagglutinable (two). The age grouping was 0 to 1 (*nil*); 1 to 4 (four); 2 to 5 (five); 5 to 20 (eight); 20 to 40 (eight).

It should be added that the treatment was *intensive* during four to six days from admission, and in all cases included one large intravenous dose. It may be considered that the intensiveness of the treatment was the predominant factor, but with one exception I have never had such consistent results with other sera, even when used similarly. The exception was the Type I serum containing anti-endotoxin, prepared by Gordon (1918–19), which I had the privilege of using in a few cases in the year 1919. It is difficult to escape from the conclusion that whatever the nature of the antibodies contained in Ferry's serum it is capable of exerting a highly specific effect.—I am, etc.,

H. STANLEY BANKS,
Medical Superintendent, Park Hospital.

London, S.E.13, Feb. 15.

SIR,—Dr. Anwyl-Davies's interesting paper in the *Journal* of February 13 on the specific antitoxin treatment of gonorrhoea gives rise to certain pertinent questions regarding the clinical technique used. No mention is made of the orthodox treatment (irrigations, prostatic and vesicular massage, etc.), and it is of the utmost importance to know whether Dr. Anwyl-Davies's patients received orthodox treatment concurrently with antitoxin.

If this was the case it is equally important to know (as a matter of control) the effect of orthodox treatment alone under the same conditions. That this is of supreme importance in evaluating any new treatment of gonorrhoea is made evident by some of the results annotated (p. 335). For instance, Dr. Anwyl-Davies's figures of two clinical cures in sixteen days of cases of uncomplicated gonorrhoea out of thirty-six cases is in my opinion, taking into consideration the ideal conditions under which the treatment was applied, nothing startling: nor are four (about 10 per cent.) cures in three weeks any more so. One knows that the problem of gonorrhoea would almost cease to exist with the universal hospitalization of all acute and uncomplicated gonorrhoea cases treated under research conditions by experts. With regard to epididymitis, to say that patients discharge themselves from hospital in five or six days because "they felt so well" is, in my submission, no advance on the results obtained by purely orthodox methods—that is, local (non-specific) symptomatic treatment in otherwise similar surroundings.

Gonorrhoea is notorious for its innumerable methods of treatment (as in all incurable or "difficult" diseases), and no hell is paved with better intentions than the cure of gonorrhoea. It is for these reasons that results of any new gonorrhoeal therapy must be rigidly controlled, contrasted, and correlated with results obtained by the orthodox methods. Nothing less will satisfy those who, while retaining their enthusiasm, have learned from painful experience to temper it with caution.—I am, etc.,

Enfield, Feb. 13. W. LESTER.

Cancer of the Breast

SIR,—Who was the first to do so-and-so and who was the first to put pen to paper on the subject are not always the same people. Many minds reach the same stage of thought about the same time. Mr. Keynes (*Journal*, January 30, p. 242) has gained his reputation with regard to radium in the treatment of carcinoma of the breast as being the first to conduct a series of experiments on a really systematic basis, and this in the face of the Paris pronouncement that radium held no place in the treatment of carcinoma of the breast. What Paris said in those days no one gainsaid—they led the world.

It was only by trial-and-error methods that this treatment was established in this country, and many of us thought in those days very differently from what we think now. I remember Mr. Sampson Handley's recommendations. They were well and conscientiously tried both with regard to the glands in the anterior mediastinum and the spread in the subcutaneous tissues. A diagram illustrating his views appears in *Radium and Cancer* (1930). His recommendations, like many others of those days, had, I thought, completely disappeared. I am surprised to see he still uses radium for the intrathoracic spread. The real cause for the diminution (not abolition) of the local recurrence is earlier diagnosis rather than the nature of the modern operation. If Mr. Sampson Handley will forgive me for saying so, we have all enjoyed better results during the last fifteen years, and this can hardly be due to details of operating or placing of radium as he thinks. The only denominator common to us all is earlier diagnosis. An axiom I hope accepted by all workers now is that radium is practically useless in inaccessible cancer: glands that can neither be seen nor felt are certainly inaccessible; we cannot even be sure of their existence in all cases.

I hope the feeling is growing among those interested in breast surgery that wide infection of the glands in the axilla and the likelihood of intrathoracic spread render the case inoperable; this I have taught for years. If the circulatory spread of the disease was more widely recognized more cases would be considered inoperable, but the modern pathologist has never had the vogue which Mr. Sampson Handley enjoyed.

No procedure for dealing with carcinoma of the breast is free "from a trying period of uncertainty" whether the treatment is by operation or radium, or by both. Early recurrence after radium treatment alone must depend on how the radium is used. My experience is that it is rare, and this is, I believe, the opinion of my colleagues at Mount Vernon Hospital. My views as to the modern treatment of carcinoma of the breast are that in really early cases (without signs or symptoms and only a shadow by transillumination) local operation and radium is sufficient. In the ordinary case radium alone or operation and radium is the best treatment; operation alone has quite fallen from my use. Anything beyond the ordinary case I consider as inoperable and treat with radium alone.

I heartily endorse Dr. Gilbert Scott's remark (February 6, p. 297): "Too much stress is laid upon the possibility of 'cure' . . . and too little upon relief of symptoms and prolongation of useful life." It is the individual and not the disease that we treat.—I am, etc.,

London, W.1, Feb. 9. DUNCAN C. L. FITZWILLIAMS.

SIR,—May I as a former colleague of Mr. Cecil Rowntree add my appreciation of his excellent and impartial treatise on the above subject (*Journal*, January 23, p. 153). It is at least an answer to those who are inclined to decry *x*-ray therapy and use the radiologist merely as a scapegoat. I cannot, however, share his optimism regarding higher-voltage *x* rays, though until we know more about the chemical, and more especially the physical, characteristics of the cancer cell we can only surmise their effect.

Dr. Webster is right, I think, when he states that effect is proportional to the quantity, or energy, absorbed, and it seems logical to assume that this will be less when more penetrating rays are employed. Reasoning upon these lines, it follows that there must also be an optimum wavelength; I firmly believe that the future of *x*-ray treatment lies in contact therapy. At present we are compelled to work at too great distances, with too large ports of entry, and with excessive filtration. It seems to me that the sole virtue of radium lies in our ability to place it in contact, or nearly so, with the growth. The ideal to aim at should be what for lack of a better term I will call adequate "ray density" per square centimetre of tissue. Under present methods too many cells escape efficient irradiation. Without enlarging further I predict that when contact therapy at 130 kV is possible our results will be equal and probably superior to those obtained with radium. Here is a golden opportunity for the British manufacturer.—I am, etc.,

Colwyn Bay, Feb. 15. W. GRIFFITHS.

Sclerosing Submucosal Injection of Turbinates

SIR,—In his letter in the *Journal* of February 13 (p. 359) Sir Robert Woods, whose opinion always demands respect, says that the puncture method of using the cautery for reduction of the turbinates came into vogue twenty-five years ago, but was found dangerous. For the last twenty-five years I have regularly used it, and have never found it harmful. Quite the reverse, in fact; and this is possibly because I have taken care how and when I did it: never

in the presence of pus, always with the precaution of an antiseptic oil afterwards and usually before, and always doing the minimum, for I have a great respect for the inferior turbinate because of its function and of the way it behaves when maltreated. I never use a snare to it except for moriforms. Rarely I have excised a small piece and brought the flaps together, or even done a small submucous resection if the bone were the offender.

Sir Robert alludes to the interesting question of the function of the turbinates, a question which the physiologists have never properly faced. I have discussed this elsewhere, so will here just repeat the question: Why, if the function of the turbinates, especially the inferior, is that of warming, moistening, and cleansing the entering air, are they most in evidence when least needed (as when one is sitting in a warm room, when they almost block the airway, the inspiratory current then taking mostly the olfactory path along the septum to the upper reaches of the nose) and least in evidence when most needed (as during violent exertion, when they are drawn tight to the bone, the air passing over the ostia of the sinus and around the spongy ethmoid, and so gaining accessory warmth)? Certainly the turbinates have directional function.—I am, etc.,

Glasgow, Feb. 13. JAMES ADAM.

Koch's Work on Tuberculin

SIR,—In your issue of January 23 (p. 162) Dr. Robert Aitken refers with surprise to the statement that no entirely satisfactory or adequate examination of Koch's work on this subject has hitherto appeared, certainly not in this country.[1] It is well that this statement should be challenged as it has been made before,[2] and, if true, constitutes a grave indictment of medical research.

It will be useful to define the words "Koch's work on tuberculin." By those words must be understood Koch's completed work. It is not sufficiently realized that the old tuberculin of 1890 and the ideas underlying its use represent only the first steps in an evolution which by 1897 led to a totally different conception of specific treatment. In 1890 the violent focal destructive effect was the obvious phenomenon—not destruction of the living tubercle bacilli but destruction of tuberculous tissue. It was only after six more years of work under the searching influence of world-wide criticism, misconception, and denunciation that Koch quietly published in 1897 a small article on "New Tuberculin Preparations," embodying the results of his completed work and claiming for the new tuberculin "a quite decided immunizing action." It is on T.R. and the closely related B.E., used with a full knowledge of immunization as understood by Koch, that we must concentrate for an adequate trial of Koch's specific method of treatment.

In his article of 1897 Koch states that he seeks with T.R. to avoid reactions as much as possible, and by gradually increasing the dose—certainly as quickly as possible, but also with the utmost restraint—to immunize against T.R. and with it, he believed, against the tubercle bacilli themselves. Application and dosage he describes as very simple. The fluid contains in 1 c.cm. 10 mg. solid substance. One begins with 1/500 mg. or less, with which only exceptionally a reaction occurs. The injections are given about every second day, with such a gradual increase of dose that rises of temperature of more than half a degree are as much as possible avoided. Any rise should have completely settled before the next injection. *As a rule he raises the dose to 20 mg., and then, if no reaction follows, desists or only injects after long pauses. In immunizing the sound and treating the sick everything depends on attaining as large a dose as possible*; absorption may be gauged by the behaviour of the injection site. In the beginning such small doses are given that no immunization worth speaking of can be expected: first when one rises to larger doses, 1/2 to 1 mg., do unmistakable workings of immunity appear. In cases of lupus it is especially remarkable that the local reactions remain very small, notwithstanding which a steady continuous improvement takes place. He ventures not to assert that T.R. is the best preparation: perhaps the whole substance of the bacillus would be better (B.E.), or combination with a serum. Under the guidance of agglutination Koch subsequently gave preference to the whole substance (B.E.), and at one time, under the same guidance, he was of the opinion that not too small reactions favoured a rise in the agglutination values; but the general principles remain the same, and with B.E. the dose to which he rose was 20 mg., or in certain cases even more.

It is in the light of the publications of 1897 and 1901, small portions of which are here briefly epitomized, that investigations of Koch's work on tuberculin must be scrutinized. It is astonishing how few investigators seem to have studied the originals. Clinicians still constantly confuse the ideas and preparations of 1890 with those of 1897 and 1901, which are of a totally different order, and no satisfactory examination of Koch's work is possible except under the most scrupulous adherence to his ultimate directions.

Now, Sir, where in the annals of British Dermatology is there the record of a single case in which a dose of 20 mg. of T.R. or of B.E. has been administered?—I am, etc.,

London, S.W.18, Feb. 12. ROBERT CARSWELL.

[1] *Proc. roy. Soc. Med.*, January, 1934, p. 291.
[2] *British Medical Journal*, 1928, 1, 375.

A Clot in the Cannula

SIR,—In the *Journal* of January 23, in the description of his intravenous trocar and cannula, Mr. Reginald A. King writes: "If clotting should occur in the cannula the obstruction can be overcome by one stroke of the trocar." In such circumstances, does Mr. King clear the cannula while it is in the donor's vein? As one who has frequently to withdraw blood from the excellent donors of the British Red Cross Blood Transfusion Service, I have never dared to remove a clot from a needle by such a method for fear of causing embolism. Is my fear groundless?—I am, etc.,

London, W.1, Feb. 10. W. E. COOKE.

Temporary Treatment in Mental Hospital Practice

SIR,—Dr. W. J. Barbour's article on temporary treatment in mental hospital practice (*Journal*, February 6, p. 281) will be enlightening to many who, like myself, have been engaged in applying, or attempting to apply, Section 5 of the Mental Treatment Act during the past six years for the benefit of their patients. In a letter which appeared in your columns in November, 1930, about a month before the Act came into force, I pointed out the ambiguity of Section 5, and asked for an official interpretation. Although no official pronouncement was ever made on the subject it became clear that the Board of Control's view was—and remains—that, as Dr. Barbour himself points out, the section applies only to a strictly limited number of cases. This number, I suggested in a later letter, in all probability amounted only to about 5 per cent. of the admissions to mental hospitals, an estimate which was accepted by the late Professor George M. Robertson, Dr. Percy Smith, and others.

How comes it, then, that at the Derby Borough Mental Hospital in 1936 the incredible proportion of 51 per cent.

of their admissions were temporary patients? Are we to assume that they are breaking the law in Derby or is the explanation that, as I have heard seriously suggested, more confusional cases occur in Derby than elsewhere in the country? Even accepting Dr. Barbour's own statement that it is "cases following childbirth, the various types of stupor, and cases where confusion is marked" which have the right to receive treatment on a temporary basis, I doubt if he will contend that these cases, as ordinarily diagnosed, amount to 51 per cent. of admissions.

The fact is that Section 5 of the Mental Treatment Act is differently interpreted in different parts of the country. It seems to be the case that the visiting committees of the county and borough mental hospitals can interpret and apply the section as they think best. The Board of Control may disagree, but as they visit these hospitals generally only once in a year they are not in a position to exercise any effective control in the matter. In those hospitals, on the other hand, in the metropolitan area, more frequently visited by the Board, their more restricted interpretation is imposed.—I am, etc.,

FREDERICK DILLON.

London, W.1, Feb. 12.

SIR,—In the interests of those who may be asked to make statutory recommendations for temporary treatment, may I be permitted to offer the following comments on Dr. W. J. Barbour's refreshingly enthusiastic description of what appears to be a legally indefensible use of Section 5 of the Mental Treatment Act, however worthy the motive. Only where a truly medical mind is associated with characteristically Caledonian contempt for apparently valueless intricacies in the law is it possible to conceive that one-half of the direct admissions to an ordinary mental hospital could be complacently received as temporary patients.

It will, no doubt, be recalled that when the Act (as a Bill) was in its committee stages an undertaking was given that volition meant, in effect, the unqualified expression of a wish to go (or not to go) to hospital. It did not mean rational volition; and no matter how insane the patient's reasons for his wish or how disjointedly or oddly it might be expressed, it was made clear that if he expressed his wishes on this point at all he should not be deprived of his liberty and civil rights against his will, except on judicial authority. By these criteria the presence or absence of volition is not a matter of opinion; it is a matter of fact. This is borne out by the wording of the statutory form of recommendation in which the practitioner "declares"—he does not state the opinion—that volition is absent. So there is not now much room for controversy.

Inasmuch as Section 5 makes inability to express volition an essential condition of reception as a temporary patient, it would add considerably to the interest of Dr. Barbour's series of cases—in fact it would raise it to the status of a phenomenon—if he could assure us (*a*) that every one of his temporary patients had been asked effectively, on the day of admission, the question "Do you wish to enter the mental hospital for treatment?" and (*b*) that not one of them had expressed a wish one way or the other. The thought that every other patient received into his hospital is either mute or unintelligible is an astonishing one. I am not by any means opposed to temporary treatment; but I should be very sorry to see a wise legal measure brought into contempt—a thing which would inevitably happen if every mental hospital in the country received half its patients on a temporary basis.

So far as the general practitioner is concerned it is his duty to utilize those legal procedures which are best suited to the individual needs of his patients. For example, it is not at all certain that a practitioner could successfully defend the signing of a certificate (for Reception Order) in a case where it could be shown that volition was absent at the material time, and that the patient could have been properly "recommended" for temporary treatment, any more than he could successfully defend the making of a statutory recommendation in the case of a patient who was capable of expressing his wishes, no matter how grossly insane the patient might be. It is all very simple really; but even if it be admitted that there are complexities it is, after all, the practitioner's duty to know what he ought to do.

There is a very simple formula which meets almost every case seen in practice. If the practitioner is satisfied that the case is one for a mental hospital he should always put (in whatever form may be most appropriate) the question "Will you enter the mental hospital for treatment?" The answer gives the key to the proper legal procedure for admission ("Yes" = Voluntary; "No" = Certified; mutism, unintelligibility, or gross irrelevance = Temporary). The fact of question and answer, especially if entered in the records of the case, protects the practitioner and the patient. This simple measure, even when carried out in one of the most conservative English counties, covering a scattered area where opportunities for disseminating knowledge of new enactments are limited, has already resulted in practically one-half of the direct admissions to the mental hospital being received without certificate—but not without volition.—I am, etc.,

Bucks County Mental Hospital, Feb. 8. IAN SKOTTOWE.

Abortion and the Law

SIR,—In a recent case before the courts, which resulted in a woman doctor being struck off from the *Medical Register*, we notice the defence stated that the practitioner in question had only completed the operation in cases where a partial abortion had already been procured. This defence was not commented upon, and no doubt the courts and the General Medical Council had ample evidence of other causes of offence. However, we should be very grateful for information as to the legal position of any medical practitioner in the actual circumstances as cited on behalf of this defendant. That is, a patient who has already attempted to procure an abortion, comes for treatment; she is bleeding, possibly septic; another medical opinion is not immediately available. What is the doctor's position in law if he proceeds to empty the uterus by surgical means?—We are, etc.,

MARGARET HOLLIDAY, F.R.C.S.I., D.T.M. and H.
CLAUDE H. MARSHALL, M.B., B.S., F.R.C.S.Ed.
P. P. D. CONNOLLY, M.B., D.P.H., D.T.M.

Kenya, Dec. 28, 1936.

*** Some reference to the subject of this letter is made in a leading article at page 393.—ED., *B.M.J.*

"Rachi-resistance" and Spinal Anaesthesia

SIR,—It is gratifying to find out that our short paper on rachi-resistance and spinal anaesthesia has aroused the interest of Mr. Norman C. Lake. In the first paragraph of his letter (*Journal*, February 6, p. 297) he assures us that there is no "lack of knowledge of the ideas put forward many years ago by Sebrechts." We for our part would like to assure him that we do not think that other users of spinal anaesthesia are ignorant of these ideas, and are at a loss to understand how Mr. Lake could read this meaning into our opening paragraph. Mr. Lake also says: "they [Black and Walters] fail to realize, however, that even with a perfect technique there are yet other sources of failure than the assumed idiosyncrasy." Near the beginning of our article we stated: "Failure may also

be due to the use of inactive solutions, or very rarely to some pathological lesion such as a cord tumour." This would seem to show an adequate realization that there are other sources of failure.

With regard to the criticisms of the cases quoted: about Case 2 Mr. Lake says, "it is common experience that secondary injections are subject to uncertainty if given immediately." In the 657 cases of which we have accurate records there have been fifteen cases in which, after an interval of fifteen minutes, adequate anaesthesia was not obtained and a second or third dose was given. In fourteen of these a good result attended this procedure, the fifteenth being the case recorded. With reference to Case 1, "it is very unlikely that an individual would exhibit such idiosyncrasy to two anaesthetics as different in their chemical constitution as decicaine and percaine." If Mr. Lake would accept the possibility of undue resistance to the permeation of the drugs peculiar to the nerve sheaths of the individual, this is easily explained.

Finally, it would seem that Mr. Lake is not so sceptical about this condition as he would have us believe; surely "a few fine adhesions in the arachnoid, an unusual arrangement of the dentate ligament" scarcely provide a more concrete pathological explanation of a rachi-resistant case than "a variation in the permeability of the nerve sheaths," which we propounded.—We are, etc.,

G. A. BAGOT WALTERS.
W. R. BLACK.

Lincoln, Feb. 12.

Blood Group Tests in Disputed Paternity

SIR,—Dr. Harley and Dr. Roche Lynch raise an important point in connexion with M and N grouping in their letter to the *Journal* of February 13 (p. 357). In discussing the necessity for the strictest controls in this work, a point with which I am in complete agreement, they mention that the immune rabbit serum may contain group-specific anti-A and anti-B agglutinins developed in response to the injection of the homologous cells. This admittedly occurs when the animals have been immunized with AM or AN blood, but it is even more important to realize that the same agglutinins may be present in the sera of animals which have been immunized with OM or ON blood.

The anti-A agglutinin occurs normally in about 40 per cent. of rabbits and the anti-B in 15 to 20 per cent., the sera of the remaining 40 per cent. failing to agglutinate any human cells. The titre of these agglutinins ranges most commonly from 32 to 128. It is essential that this fact should be borne in mind so that the appropriate absorptions may be made even when OM or ON cells are used for immunization. It is preferable to test the rabbits before injection, rejecting those which contain the agglutinins, thus obviating any error from this source.—I am, etc.,

JOHN C. THOMAS,
Serologist, Metropolitan Police Laboratory.

Hendon, Feb. 13.

Inhalational Therapy

SIR,—The correspondence in your columns on inhalational therapy prompts me to mention that in 1911 I began to institute a London inhalatorium. After visiting and examining the methods at Ems, Homburg, Baden-Baden, Mont Dore, etc., it seemed to me to be well worth attempting to form one. I explained to a good many leading men what I thought of doing, and they heartily agreed with me. I have still the signed list of those interested who became supporters—namely, Sir James Goodhart, Sir StClair Thomson, Sir Leonard Hill, Dr. Arthur Latham, etc. The scheme was printed and sent out to a number of likely subscribers, several of whose names were given by Dr. Latham. But nothing came of it. Money was not advanced and the thing collapsed.

I have not had much experience of inhalation treatment, and have no reason to challenge the good work which the physicians have related to you. But I may say that I agree most emphatically with your remarks on the necessity of having this practice first thoroughly examined by a competent staff (*Journal*, February 13, p. 360). One of my chief reasons is that I have found some asthmatic patients using a spraying machine. I observed in two or three cases that they were quite unable to give up the inhalation, using it day and night, and continuing it until their condition became hopeless, and they had to be sent to an institution. It is therefore of high importance to know what to give in the inhalation, and how and when to use it.—I am, etc.,

A. G. AULD.

London, W.1, Feb. 13.

Psychological Factors in Rheumatism

SIR,—I have been deeply impressed by Dr. James L. Halliday's articles on the psychological factors in rheumatism (*Journal*, January 30, p. 213; February 6, p. 264). Ten years ago my interest in this approach to disability and disease was aroused by the work of my friend Mr. W. S. Inman, who was investigating the emotional factors in various functional, infective, and haemorrhagic conditions of the eye. I proceeded to apply his belief in "the language of the emotions" to every kind of ailment and illness that came under my care as a general practitioner with amazing results, for I found with monotonous regularity the precedence of a distressful state of mind in almost every case.

Often the patients recognized, and even called my attention to, this precipitating cause of their ill-health, but I noticed that the more obviously neurotic or the very highly religious patient would often indignantly repudiate any such factor. "Psychological rheumatism" of the severer types is hard indeed to dislodge, for it represents the expression of a profound and often unconscious personal disharmony. Such a case is the following.

In January, 1933, a colleague sent me a young working-class woman who had been "on the panel" for ten years with severe rheumatoid arthritis. Fingers, wrists, ankles, and knees were swollen, deformed, and rigid, and she used to hobble in with a stick. She had constant pain in the shoulders, spine, and other joints, and had had every conceivable treatment.

I saw her for an hour twice weekly for fifteen months, for talks and superficial analysis. Her mental improvement was remarkable, her physical improvement was slower, but received a great impetus when she went to the country for two weeks; here she started walking for miles and using her hands. On her return she took a post as general help, "signed off the panel," and is still in whole-time work after three years. After working for a few weeks the swelling round the joints disappeared, though when aroused by anger or jealousy large painful lumps would come up and last for a few days, and on two occasions of emotional upset she developed a skin urticaria. Both her wrists became loosened quite suddenly, one during sleep, and the knees also suddenly decided to bend one day in church, having refused to kneel for ten years! This suggests that the swelling and rigidity of arthritis may be sometimes due not to ankylosis but to unconscious muscular action and some kind of chronic angioneurotic oedema.

This illness started in a very acute fashion when the patient was in service with a mistress who, she considered, ill-used her and treated her as "a maid," not as a member of the

family, and she has refused to submit to the indignity of uniform ever since. She had a severe character neurosis, exhibiting intense resentful pride, self-pity, and jealousy, and had a tremendous struggle to overcome the desire to return to the position of the helpless and pitied invalid.

During the first two years of her treatment I came up against much hostility in helping her to face "the consequences of becoming well." Of course she is not fully cured of her character defects or neurotic tendencies, and has still some limitation of hand movements; but at least she is now a happier, self-respecting, and self-supporting member of the community instead of being a charge upon the State.—I am, etc.,

Southsea, Feb. 14. OLIVE B. SHARP, M.B., B.S.

Prevention of Silicosis

SIR,—In my turn I am obliged to Dr. J. A. Goodfellow for pointing out the facility with which iodization of the atmosphere may be carried out. I am enlightened also by the description of the experiments which he has made and proposes to make with the object of demonstrating the potency of his method in prophylaxis against Koch's infection. It is a method which would certainly appear to have far-reaching possibilities, since the infection occurs in confined spaces which would lend themselves readily to iodization, but the question of iodine sensitization, possible harmful effects from absorption, and other similar questions would require and no doubt receive careful consideration and experimental control. Some degree of absorption may, of course, be desired, and after reading Dr. Goodfellow's letter I was left wondering whether the success of the method is presumed to depend on the effects of the iodine absorbed or on disinfection of the atmosphere prior to inhalation. I imagine the latter, although the former would appear more likely to be the event in the sterility cases, unless these suffered from pulmonary infection before treatment.

I trust Dr. Goodfellow will in due course favour us with the results of his investigations; I shall await these with interest.—I am, etc.,

London, E.1, Feb. 15. A. L. CRADDOCK.

The Transit of Pregnant Women by Air

SIR,—The question of the transit of pregnant women in aeroplanes has come up for consideration, and is one of importance to the medical profession as well as to the general public. Several factors are involved, such as the distance to be travelled and the facilities which exist for medical aid at the landing grounds, as well as the condition of the patient herself. The rules formulated would presumably differ for those flying within European limits and for those flying across Africa or Asia or to Australia, and tentatively one might suggest a limit of one clear month from the expected date of delivery in the former and two months for the long-distance passengers. I should be grateful to members of the profession who would give their views on this question, either in the columns of the *Journal* or in private correspondence.—I am, etc.,

Stafford Road, Waddon, Surrey, Feb. 12. F. P. MACKIE, Colonel I.M.S. (ret.), Medical Adviser, Imperial Airways Ltd.

A report of Sir Francis Fremantle's Chadwick Public Lecture, "The Doctor's Mandate in Parliament," appeared in these columns on December 5, 1936 (p. 1157). The full text of the lecture, with an account of the discussion following it, has now been published in pamphlet form by P. S. King and Son, Ltd., Orchard House, Westminster (price 6d.).

Obituary

W. S. PAGET-TOMLINSON, LL.D., M.D., F.R.C.P.
Kirkby Lonsdale

Dr. W. S. Paget-Tomlinson, one of the best-known figures in Westmorland, died on February 8 in his eighty-ninth year at his home, The Biggins, Kirkby Lonsdale. He is survived by two sons and a daughter, Colonel W. Paget-Tomlinson, Dr. E. E. Paget-Tomlinson, and Miss A. M. Paget-Tomlinson.

Born at Forton, near Lancaster, in 1848, he was the youngest son of Thomas Paget, who died in 1852. Destined for the medical profession, he began his studies at the Liverpool School of Medicine in 1866 and worked under the late E. A. Bickersteth in the old Royal Infirmary. From Liverpool he went to University College, London, taking his diplomas M.R.C.S., L.R.C.P., and subsequently the M.B., Ch.B. Lond. in 1871. For a time he studied in Berlin and Vienna, and on his return to England practised at Blundellsands in the neighbourhood of Liverpool, and while in active practice obtained the M.D.Lond. and in 1883 became M.R.C.P. Able, alert, kindly, and energetic, he rapidly built up a sound practice, which he reluctantly abandoned in 1889 after eighteen years, when he succeeded to the estates of the late Miss Elizabeth Tomlinson, and by Royal Licence changed his surname from Paget to Paget-Tomlinson. Professor Lyon Blease, as public orator, aptly said in 1934, on the occasion of the granting of the honorary degree of LL.D. to Dr. Paget-Tomlinson by Liverpool University: "He was compelled by a change of circumstances to retire, but only from one active life into another. When he assumed the responsibilities of a Westmorland landowner he showed that in changing his home he had suffered no change of spirit." He was then the oldest known former medical student of the Liverpool Medical School of the 'sixties. In 1924 the Royal College of Physicians of London indicated its appreciation of his work in Westmorland by electing him a Fellow.

His training in medicine and his eighteen years in general practice had peculiarly fitted him for the new sphere in which he found himself, and his special knowledge, ability, energy, tenacity, and tact found full scope. It was not long before this was recognized. In 1890 he was appointed a magistrate and in 1897 was High Sheriff and received the Queen's Jubilee medal. From 1896 he became a member of Westmorland County Council, and in 1906 chairman of the Agricultural and Diseases of Animals Committee, and in this position took special interest in anthrax and bovine tuberculosis. In 1908 he became chairman of the new Committee for School Medical Inspection, and from that time onwards education occupied his earnest attention. When the question of dental treatment for school children arose he provided the funds for an experimental trial of two years' dental care and supervision to all the children attending the Kirkby Lonsdale Elementary School. The results were so satisfactory that he successfully urged the appointment of a whole-time dental surgeon.

For many years he was one of the governors of Sedbergh School, and up to the time of his death chairman of the Queen Elizabeth School and that at Casterton. In furthering their best interests he spared neither himself nor his money. One of his most ambitious and valuable endeavours was the establishment of the Westmorland Sanatorium for Consumption at Meathop. His partner in this was Dr. W. R. Parker of Kendal. It is noteworthy

that there was no such sanatorium for the poor at that time in England: the Meathop institution was the pioneer. He was intimately associated with its activities and its development, towards which he was a liberal contributor, and he was its president at the time of his death. It was opened by the late Lord Derby in 1900, and it stands as a permanent memorial to the foresight and public spirit of Dr. Paget-Tomlinson.

No reference to Dr. Paget-Tomlinson would be complete if mention were not made of his intense love of music. Wherever he lived he took a leading part in its musical life, more particularly that of its choral societies. He was choirmaster of Kirkby Lonsdale Parish Church up to his death and president of the Choral Society. Nature had endowed him with a fine mellow voice, which constant practice had preserved in a remarkable manner. Gentle and sympathetic, it was natural that he should love animals and children. He was the author of a small book entitled *Kindness to all Created Things*, and the well-known quotation with which he begins gives us the key to his life:

"I shall pass through the world but once; any good thing therefore that I can do or any kindness that I can show to any fellow creature or dumb animal, let me do it now, let me not defer it nor neglect it. I shall not pass this way again."

Dr. Paget-Tomlinson joined the British Medical Association as long ago as 1873. On his 80th birthday a presentation in recognition of his public services was made to him by the inhabitants of Kirkby Lonsdale and his tenants in Westmorland, Lancashire, and Yorkshire.

THEODORE JUST, M.B., F.R.C.S.

Aural Surgeon in Charge of Out-patients, St. Bartholomew's Hospital

We regret to announce the death, on February 13, of Mr. Theodore Just after a long illness from which at one time he seemed to have made recovery.

Theodore Hartmann Just was born in Bristol on April 23, 1886, the only son of the late Sir Hartmann Just, K.C.M.G., C.B. From St. Paul's School, where he distinguished himself alike in work and play, he went to Trinity College, Cambridge, in 1905 as an exhibitioner. At Cambridge he gained a blue for athletics, representing the University in the half-mile and mile races against Oxford, and was president of the C.U.A.C. in 1908, in which year he won the amateur half-mile championship of the United Kingdom and took part in the Olympic games. After obtaining his B.A. degree, with first-class honours in the Natural Sciences Tripos, Just went on to St. Bartholomew's, winning the half-mile in the United Hospitals Sports four years in succession. He qualified M.R.C.S., L.R.C.P. in 1910 and held in succession the posts of house-surgeon, house-surgeon to the throat, nose, and ear department, and demonstrator of pathology at Bart's. He graduated M.B., B.Ch. at Cambridge in 1912. On the outbreak of war he joined the R.A.M.C. as a temporary lieutenant, and returned to civil life in 1919 with the rank of major; in that year he obtained the F.R.C.S. Specializing in oto-rhino-laryngology, he was soon appointed surgeon to the Throat Hospital, Golden Square, and some years later assistant aural surgeon to St. Bartholomew's and assistant surgeon to the throat, nose, and ear department of the National Hospital, Queen Square. He also became consulting aural surgeon to the Lord Mayor Treloar's Hospital for Cripples at Alton, to the Foundling Hospital, and to the Harrow Hospital, and consulting surgeon to the ear and throat department of the West Suffolk General Hospital, Bury St. Edmunds.

Just was honorary secretary of the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association at Bradford in 1924, and vice-president of the same Section at the Bournemouth Meeting ten years later. During his war service he contributed notes on the bacteriology of wounds to the *Journal of the R.A.M.C.*, and afterwards wrote on the treatment of collapse following operation on the tonsils in the *British Medical Journal*. He also published papers on otological subjects in the *St. Bartholomew's Hospital Reports* and the *Proceedings of the Royal Society of Medicine*. His death at the age of 50 is a loss to the specialty in which he had done admirable work, and to a wide circle of friends and colleagues.

Mr. H. B. STALLARD writes:

The death of Mr. T. H. Just is not only a tragic loss to his friends and his profession but also to athletics. He was president of the C.U.A.C., and in 1908 won the half-mile for Cambridge against Oxford in 1 minute 55 4/5 seconds, a remarkably fast time under such weather conditions that exist in March, when the inter-university sports are held. In the same year he was amateur half-mile champion and represented Great Britain at the Olympic games held in London. His athletic prowess continued during the time he was a student at St. Bartholomew's. After he had relinquished active participation in athletic sports he continued to show a constant and faithful interest in the inter-university sports, the inter-hospitals annual athletic contest, St. Bartholomew's sports, and other such events, at which he was often seen in an official capacity as a referee, judge, timekeeper, or starter. His generosity in giving much of his valuable time to these causes, his constant cheerfulness, and fund of good humour earned him great popularity among many generations of young and old athletes, who will always remember him with very genuine appreciation and warm affection. To them his loss is irreparable.

Dr. HENRY THOMAS SAMUEL, D.S.O., formerly of Newport Road, Cardiff, and late A.D.M.S. of the 53rd Division, died at his residence in Bournemouth on January 10 at the age of 57. Born in Merthyr Tydvil, he received his medical education at University College, Cardiff, and at St. Bartholomew's Hospital. In 1903 he obtained the diplomas M.R.C.S., L.R.C.P., and his earlier appointments included those of assistant house-physician, house-surgeon, and resident medical officer at Cardiff Infirmary. He then engaged in private practice in Cardiff, and removed to practise in Bournemouth two years ago. He joined the Cardiff Volunteers in 1906, and from 1908 until the outbreak of war held the commission of captain, R.A.M.C.(T.), in the 2nd Welsh Field Ambulance. In 1914 he was mobilized with his unit, and was promoted to the rank of major. In 1915 he went to Gallipoli as second in command, took part in the landing and evacuation of Suvla Bay, and was promoted to command the unit in November of that year. He subsequently served with it in Egypt and Palestine, was mentioned in dispatches, and was awarded the D.S.O. With the exception of one short period of leave in January, 1917, he served over-seas from 1915 to 1919. At one time he commanded the 117th Indian Combined Ambulance in Palestine, and towards the end of the campaign was A.D.M.S. of the 53rd Division. After demobilization he held the post of medical referee to the Welsh Region of the Ministry of Pensions. For twenty-five years he had been a member of the Territorial Force, retiring in 1934 with the rank of colonel. In his civilian life he was a very popular practitioner, first in Cardiff and latterly in Bournemouth. For many years he was a clinical assistant in the out-patient department of Cardiff Royal Infirmary, and as

such was in the most cordial relations with the remainder of the staff, his great clinical abilities being allied to unfailing loyalty, insight, and sympathy. In 1903 he married Clari Selkirk, daughter of the late William James Selkirk of Cheltenham, and is survived by his widow, two sons, and a daughter. He became a member of the British Medical Association in 1906. He was buried in Cardiff, the funeral being attended by a large gathering of his professional colleagues and many other friends.

We regret to learn of the death abroad of Dr. FREDERICK ERNEST WITHERS of Bradford-on-Avon, who had been a member of the Representative Body of the British Medical Association at the Annual Meeting in 1914. He was born at Barnstaple in July, 1868, and studied medicine at St. Bartholomew's Hospital, where he distinguished himself in anatomy. After obtaining the M.R.C.S. and L.R.C.P. diplomas in 1892 he served in turn as house-surgeon at Bart's and chief assistant in the skin department, and as surgeon to the Reading Dispensary. From 1915 to 1919 Ernest Withers was on active service in France as officer in charge of the Medical Division of No. 9 General Hospital, and afterwards as registrar and liaison officer at the same unit when it became the Lakeside General Hospital of the U.S. Expeditionary Force. He attained the rank of major R.A.M.C. (T.A.) and was mentioned in dispatches, and for four years after the war held the post of medical superintendent of the Ministry of Pensions Hospital at Netley.

Dr. DAVID LAWRIE died on February 13 at his home in Grosvenor Crescent, St. Leonard's-on-Sea. He was born at Kilmarnock in 1860, and from Kilmarnock Academy went to study medicine at the University of Glasgow, graduating M.B. and C.M. in 1881. From 1891, the year in which he obtained the Cambridge D.P.H., until 1899 he was medical officer of health and police surgeon for Kilmarnock Burgh, assistant physician to the local infirmary, and surgeon-captain in the Ayr and Galloway Artillery Volunteers. During the South African War he was for a time civil surgeon at Netley Hospital. Dr. Lawrie afterwards settled at Glastonbury, becoming M.O.H. under the urban district council and certifying factory surgeon for the district. He had been a member of the British Medical Association for fifty-four years.

Dr. JULES FREDERICK REY, who died at Bognor on February 13, was born at Ashford, Middlesex, in 1879, and spent his schooldays at Boulogne. He studied medicine at Guy's Hospital, qualifying M.R.C.S., L.R.C.P. in 1904, after which he served for two years as resident medical officer to the Royal Boscombe and West Hants Hospital, Bournemouth. Actively interested in various departments of medical science and a frequent contributor to medical journals, Dr. Rey combined general practice with work in radiology and electrotherapeutics. He was a member of the Roentgen Society, and joined the British Medical Association immediately after qualification. In recent years he was one of the honorary medical staff of the Bognor War Memorial Hospital.

Dr. ALFRED LLEWELLYN PERKINS, who died on January 28, was born at Garnant, Carmarthenshire, in 1857. He studied at St. Thomas's Hospital and Edinburgh University, and qualified as L.R.C.P. and L.R.C.S.Ed. in 1881. After practising some while in Wellingborough, Northants, he became the first resident doctor in Sketty, Swansea, where he carried on his practice for forty-six years, retiring in April, 1933. During that time he held various public appointments, among these being medical officer under the Swansea Board of Guardians. During the war in addition to doing the work of three practices he acted as medical officer to the troops stationed in Sketty and Swansea. Dr. Perkins was a very keen sportsman and played cricket for the Surrey colts, and later for the Sketty team, which he captained. He was the oldest member of the Swansea Cricket and Football Club. He was a keen member of St. Paul's Church, Sketty, where he was a sidesman for a number of years. He joined the British Medical Association in 1891.

Dr. FREDERICK WILLIAM ROBERTSON of Bletchingley, Surrey, died on February 9 after a few hours' illness. He was born in Renfrewshire on December 24, 1866, and was educated at the Glasgow Academy. After graduating M.A. of the University of Glasgow in 1888 he came to London to study medicine at St. Bartholomew's Hospital. He obtained the English Conjoint diplomas in 1895 and the M.B. and B.S.Lond. degrees with honours in 1897, proceeding to the M.D. two years later. At St. Bartholomew's he was house-surgeon and clinical assistant in the throat department, and then served as casualty officer to the East London Hospital for Children (now Princess Elizabeth of York Hospital for Children). Dr. Robertson started work at Bletchingley in 1909, and had held appointments as M.O.H. for the Godstone Rural District, medical officer to the Isolation Hospital and the Union Infirmary, public vaccinator, and medical officer to the Post Office. For his services in the war he received the O.B.E. He joined the British Medical Association immediately after qualifying and remained a member for some years after retiring from active practice.

We regret to record the death in London on February 11 of Dr. JOHN MAXWELL GOVER, D.S.O., T.D., at the age of 59. Dr. Gover received his medical education at Newcastle, and graduated M.B., B.S. of the University of Durham in 1898. He proceeded M.D. in 1922. He then came to London to St. Bartholomew's Hospital, and took the diplomas of M.R.C.S., L.R.C.P. in 1900. His early appointments included those of house-physician at Brompton Hospital, house-surgeon and house-physician at the Royal Victoria Infirmary, Newcastle, and assistant demonstrator of anatomy and physiology in the Newcastle College of Medicine. Dr. Gover joined the British Medical Association in 1903, and held office as chairman of the Newcastle-on-Tyne Division in 1925–6. He was keenly interested in the Territorial Army, and at the time of his death held the rank of lieutenant-colonel, R.A.M.C., T.A. He served in the war of 1914–18, and received the D.S.O. in 1918 and the Territorial Decoration in 1924. The funeral took place at South Gosforth on February 15.

The Services

ARMY MEDICAL SERVICES

The War Office announces that Dr. H. Letheby Tidy has been appointed Honorary Consulting Physician at the Queen Alexandra Military Hospital, Millbank, in succession to Colonel A. G. Phear, C.B., whose tenure of appointment has expired.

DEATHS IN THE SERVICES

Lieut.-Colonel RONALD WILLIAM EDWARD HUNTLY NICHOLSON, R.A.M.C. (ret.), died at Wokingham on November 23, 1936, aged 79. He was born at Exeter on May 2, 1857, was educated at King's College Hospital, and took the M.R.C.S. in 1879, the L.R.C.P.Ed. in 1880, and the D.P.H. of the Irish Colleges in 1903. Entering the Army as surgeon on July 31, 1880, he became lieutenant-colonel after twenty years' service, and retired on April 16, 1902. He served on the North-West Frontier of India in the Chitral campaign of 1895, taking part in the relief of Chitral, and getting the Frontier medal, and in the South African War in 1899–1901, when he took part in the relief of Kimberley, in the operations in the Orange Free State, including the actions at Paardeberg, Poplar Grove, and Driefontein, and in operations in the Transvaal, receiving the Queen's medal with four clasps. He rejoined in December, 1914, for service in the war of 1914–18.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part I:* A. P. Booth, J. Bouchard, A. B. Brereton, J. A. Brocklebank, C. J. C. Cooke, M. W. Dahab (distinction), G. G. Doel, A. M. Evans, T. H. T. Gautby, Muriel O. Gibson, D. Gold, W. Irwin, J. L. King, M. Lederman, C. T. MacCarthy, M. A. M. Marei, J. R. M. Martin, V. Prakash, H. Pringle, R. R. Rishi, A. Sirry, C. P. Theron, D. C. Virmani, J. W. Winchester.

UNIVERSITY OF MANCHESTER

The Vice-Chancellor, Professor J. S. B. Stopford, has been appointed as the representative of the University at the Coronation Ceremony on May 12.

The following appointments have been made: Dr. P. M. Crowe as assistant lecturer in mental diseases; Dr. F. A. Gill as special lecturer in mental diseases; Dr. H. B. May as assistant lecturer in bacteriology; and Dr. C. H. Adderley as assistant bacteriologist in the routine section of the department of bacteriology and preventive medicine.

UNIVERSITY OF SHEFFIELD

At the meeting of the University Council on February 12 it was announced that a further grant of £250 in aid of research in the department of pharmacology would be made by the Rockefeller Foundation of New York. Dr. M. A. MacConaill was appointed representative of the University on the Joint Committee of Anthropological Research and Teaching. The Council accepted with regret the resignations of Mr. G. H. Froggatt, M.R.C.S., of the honorary lectureship in dental mechanics, and Dr. J. Mathewson Webster of the honorary lectureship in forensic medicine, and accorded them its thanks for their services to the University.

UNIVERSITY OF DURHAM

The *London Gazette* of February 2, 1937, contains an announcement giving notice that Statutes for the University of Durham under the University of Durham Act, 1935, have been submitted to His Majesty in Council, and that copies of these Statutes can be obtained at the Privy Council Office, Whitehall, S.W.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council was held on February 11, with the President, Sir Cuthbert Wallace, in the chair.

A loyal address to His Majesty King George VI was approved.

The following L.C.C. hospitals were recognized under Sections 21 and 23 of the Fellowship Regulations: Dulwich, St. Giles, St. Olaves, Fulham, St. Leonard's, Mile End, St. Alfege's, St. Andrew's, St. James, Lambeth, Lewisham, St. Mary Islington, St. Charles, St. Mary Abbots, Bethnal Green, Hackney. Candidates who wish to qualify for admission to the Final Fellowship examination by holding a resident post at one of the above L.C.C. hospitals are, however, required to produce evidence of the suitability of such post before accepting the appointment.

Sir Charles Gordon Watson was appointed Bradshaw Lecturer and Sir Charles Sherrington Thomas Vicary Lecturer for 1937.

It was announced that the Council election occasioned by the retirement in rotation of Sir Holburt Waring, Mr. C. H. Fagge, and Mr. W. Sampson Handley would take place on Thursday, July 1.

Diplomas

Diplomas of Membership were granted to W. J. C. Crisp and to the 178 candidates whose names were given in the report of the meeting of the Royal College of Physicians of London published in the *Journal* of February 6 at page 306; as were the names of the seven candidates who have been granted Diplomas in Tropical Medicine and Hygiene.

Diplomas in Medical Radiology were granted, jointly with the Royal College of Physicians, to G. G. Binnie, F. Constant, Mary J. Cronin, and J. M. Lees.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians, under the special conditions of the regulations to H. Richards, R. D. Pramanik, and to the nineteen candidates whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of February 6 at page 306.

CONJOINT BOARD IN ENGLAND

The following hospitals have been added to the list of institutions recognized by the Examining Board in England during the year 1936:

For the Diploma in Anaesthetics: Kettering and District Hospital, North Middlesex County Hospital, West Middlesex County Hospital, Oldchurch Hospital, Romford, County and City of Perth Royal Infirmary, *Hospital for Sick Children, Great Ormond Street, London, W.C.

For the Diploma in Child Health: Belgrave Hospital for Children, Clapham, S.W., Evelina Hospital for Sick Children, Southwark, S.E., Hospital for Sick Children, Great Ormond Street, W.C., Paddington Green Children's Hospital, W., Princess Elizabeth of York Hospital for Children, Shadwell, E., Queen's Hospital for Children, Hackney, E., Royal Waterloo Hospital for Children and Women, S.E., South-Eastern Hospital for Children, Sydenham, S.E., Victoria Hospital for Children, Tite Street, S.W., Alder Hey Hospital for Children, Liverpool, Booth Hall Hospital for Children, Manchester, Jenny Lind Hospital for Children, Norwich, St. Mary's Hospital, Portsmouth.

For the Diploma in Laryngology and Otology: East Suffolk and Ipswich Hospital, Ipswich, Radcliffe Infirmary, Oxford, Royal Hospital, Wolverhampton, Royal Infirmary, Doncaster.

For the Diploma in Ophthalmic Medicine and Surgery: East Suffolk and Ipswich Hospital, Ipswich, Royal Infirmary, Doncaster, Sussex Eye Hospital, Brighton.

For the Diploma in Psychological Medicine: Erdington House, Birmingham.

For the Diploma in Tropical Medicine and Hygiene: Usher Institute, Edinburgh.

* Under special conditions.

Medical Notes in Parliament

The report of the Committee of the Privy Council for Medical Research and Report of the Medical Research Council for 1935–6 was presented to both Houses of Parliament on February 11. On the same day a scheme for increasing the demand for milk by publicity and propaganda within the area of the Milk Marketing Board for England and Wales was laid on the Table in both Houses.

The Factories Bill was read a second time by the House of Commons on February 15 without a division and was sent to a Standing Committee. Sir Ernest Graham-Little has been added to this committee.

The Consolidated Fund (No. 1) Bill and the Unemployment Assistance (Temporary Provisions) (Amendment) Bill were read the third time and passed in the House of Lords on February 16. On the same day the Lords passed the Regency Bill and the Architects Registration Bill through committee.

The Registration and Regulation of Osteopaths Bill was down for second reading in the House of Commons on February 12, but was not reached.

In the House of Commons on February 16 Sir Kingsley Wood introduced the Local Government (Finance Provisions) Bill, which amends Part VI of the Local Government Act, 1929, and repeals Section 45 of the Unemployment Assistance Act, 1934, and the proviso to paragraph (*c*) of subsection 2 of Section 9 of the Rating and Valuation Act, 1925.

The Maternity Services (Scotland) Bill was reported to the House of Commons from Standing Committee, with amendments, on February 16.

Mr. Chamberlain on February 17 moved a resolution to authorize the borrowing during the next five years of sums up to £400,000,000 for defence expenditure.

New proposals were published in a White Paper on February 17 for revising the "block grant" to local authorities in England and Wales. These proposals (with which the local authorities agree) are the result of investigation into the working of the formula whereby £44,000,000

has been distributed every year from the exchequer to help provide health and other local services. This assistance will now be increased by some £5,000,000 a year to £49,000,000 in grant or £46,000,000 in cash payments. A larger proportion than hitherto will benefit the poorer areas by giving greater weight to the amount of local unemployment and also to sparse population. The necessary Bill has been introduced.

A petition "from inhabitants of the United Kingdom" for prohibition of experiments on dogs has been presented in the House of Commons.

Grounds for Divorce

A Standing Committee of the House of Commons resumed on February 2 consideration of the Marriage Bill introduced by Mr. De la Bere.

RECURRENT FITS OF INSANITY OR EPILEPSY

On Clause 5 (New Grounds for Nullity) Mr. SPENS moved to leave out as a ground for nullity that a person was "in a state of mental unsoundness which has become definite within six months of the marriage, or was, at the time of the marriage, subject to recurrent fits of insanity or epilepsy." Mr. Spens said he could not perceive what the expression "recurrent fits of insanity" was intended to achieve. The phrase appeared to be covered by other provisions of the Bill. It was a new suggestion that recurrent fits of epilepsy should be a ground for annulling any contract, and would introduce a new principle into the law. Epilepsy often developed into some form of mental deficiency or insanity, in which case it would be covered by the other provisions.

Sir ARNOLD WILSON said these provisions were recommended in 1912 by both the majority and minority of the Royal Commission on the Marriage Laws which sat immediately after the detailed inquiry into mental deficiency from 1905 to 1908. The committee reached the unanimous conclusion that recurrent fits of insanity or epilepsy should constitute a ground for nullity, and that conclusion has never been challenged in the controversial literature since issued. The difference between lunacy and recurrent fits of insanity was partly legal. There were times in certain cases when a person of unsound mind was sane and judged to be capable of fulfilling a contract. Questions of eugenics should be in the minds of the committee, but he preferred to take the point that the marriage contract would not have been undertaken had the other party known of those recurrent fits. As regards epilepsy, it was normally hereditary and the consequences were disastrous. The epileptic parent was a terror to children and to the other parent, and although the Bill did not seek to upset the contract if it was undertaken with full knowledge that the other party was epileptic, he wished to give effect to the ordinary law of contract where there had been concealment or fraud. There had been no progress by medical science in dealing with epilepsy. It had to be recognized as a malady for which there was no certain cure, and for which isolation was the only remedy. The Mental Deficiency Committee reached the unanimous conclusion that epileptics in general should be segregated, and that people subject to recurrent fits of epilepsy or insanity should be cared for at the expense of the State in colonies of various types, but not regarded as fit members of society.

The amendment was by leave withdrawn.

Sir ARNOLD WILSON moved an amendment dealing with the same passage as that on which Mr. Spens had spoken. He proposed to substitute the words "was at the time of the marriage, or has been within twelve months of that time, placed in an institution or guardianship under Section 3, Section 6, Section 8, or Section 9 of the Mental Deficiency Act, 1913." Sir Arnold summarized the relevant sections of the Mental Deficiency Act, and said there was full provision in them for medical examination by two doctors and medical certificate. Section 8 related to mental defectives who had been found upon medical inquiry at the instance of justices to be medically defective, and were certified as such. Section 9 referred to persons who had been placed in a lunatic asylum, criminal or other, but were thereafter certified by doctors not to be insane but to be mentally defective. The new words he proposed did not differ in general scope from the original ones, which referred to mental unsoundness that had become definite within six months of marriage. His amendment would prevent any persons being made the subject of a petition for nullity on this ground unless they had appeared before the court with full medical evidence and had opportunity of having their own doctors.

The committee then agreed to the amendment.

VENEREAL DISEASE

Commander BOWER moved to leave out the paragraph establishing as a ground for nullity "that the respondent was at the time of the marriage suffering from a venereal disease in a communicable form." Commander Bower said medical opinion was divided on whether venereal disease was curable or not. Great strides had been made in recent years in curing it, particularly in cases of hereditary venereal disease of the third or fourth generation. The paragraph under discussion proposed to allow a breach of the marriage tie on account of a possibly curable bodily state. Venereal disease was often contracted innocently. Why, then, put in venereal disease and not diabetes?

Sir ARNOLD WILSON said the promoters of the Bill intended at a later stage to define more closely venereal disease, which had not yet been defined in any statute. They were at work to produce a definition that would restrict it to those forms of disease unquestionably perilous to the offspring as well as to the other spouse, and were probably incurable so far as recurrent possibilities of infection presented themselves. He thought it would be possible to exclude forms of venereal disease innocently contracted—cases generally ascertainable, and, if properly treated, not transmissible.

Commander BOWER withdrew his amendment, and the committee agreed to delete the words "in a communicable form" on Sir Arnold Wilson's undertaking to produce a definition of venereal disease.

The amendment was agreed to.

The other grounds for nullity were not challenged, and Clause 5 was approved as amended.

Clause 7, "Abolition of decree nisi," and Clause 8 "Further provision for custody, etc., of children," were struck out of the Bill, and the committee adjourned.

On February 9 Sir ARNOLD WILSON moved a new insanity definition clause, which enacts that a person of unsound mind shall be deemed to be under care and treatment (*a*) while he is detained in pursuance of any order or inquisition under the Lunacy and Mental Treatment Acts, or of any order or warrant under the Army Act, the Air Force Act, the Naval Discipline Act, the Naval Enlistment Act, or the Yarmouth Hospital Act, or was being detained as a criminal lunatic or in pursuance of an order made under the Criminal Lunatics Act, 1884; and (*b*) while he is receiving treatment as a voluntary patient under the Mental Treatment Act, 1930, being treatment which follows, without any interval, a period of such detention as stated above, and not otherwise. The new clause was added to the Bill.

This concluded the committee stage, and the Bill was ordered to be reported to the House.

Maternity Services in Scotland

The Standing Committee on Scottish Bills began on February 4 the consideration of the Maternity Services (Scotland) Bill.

On Clause 1 (Provision of Maternity Services) Mr. PETHWICK-LAWRENCE moved to include among the facilities which should be available when required by the Department of Health, "The services of an anaesthetist when recommended by the medical practitioner." Mr. Elliot accepted this amendment.

In Clause 1, Subsection 5, Mr. LEONARD moved to omit the provision for consultation between the local authority preparing a scheme and "such local organization (if any) of

registered medical practitioners as appears to the authority effectively to represent the opinions of such practitioners practising in their area." He proposed to substitute "medical registered practitioners practising in their area who in the opinion of the Department are specially qualified in midwifery." He said many doctors in large towns were not keen on this work. In Glasgow in 1935 an analysis of notifications of births indicating an attendance in the homes was made, and revealed that a small number of medical practitioners in Glasgow undertook this work. A local authority should have a panel of doctors specially qualified in this work, and efforts should be made to consult with the groups of medical practitioners specially qualified to give guidance on it.

Mr. ELLIOT said this was a far-reaching proposal. Trade union representatives would be indignant if the Department of Health for Scotland made itself the judge whom it should consult in an organized trade. That the Department should be empowered to go over the head of the organization which those interested had set up and select the people it wished to consult on conditions of employment would be a delicate business and a dangerous precedent. What was to be the test of this special qualification? Merely the opinion of the Department.

Mr. Leonard withdrew his amendment.

TEACHING OF MIDWIFERY

Mr. ELLIOT begged to move in the same clause the proviso that:

> "The Department before the concluding proposals under this section shall satisfy themselves that as far as reasonably practicable the proposals make provision for co-operation between the local authority and recognized medical schools and institutions, or other organizations engaged in the training of midwives, and for reasonable facilities for the teaching of midwifery."

He said that the amendment enjoined co-operation upon those concerned. It might be that the services would be developed in future along lines which could not be exactly foreseen, therefore the words should provide in most general terms for the purposes which all desired. The amendment left it possible for the administrative services of the medical schools and of great hospitals and institutions to make in future years a service of more advanced type than could be conceived to-day.

Mr. GRAHAM KERR said his friends were grateful for the step which had been taken, but were not satisfied that it was long enough. The clause seemed too vague. On receiving an assurance from the chairman that the new clause which he had tabled would be considered later Mr. Graham Kerr said he would accept the amendment, and the committee agreed to it.

MATERNITY BENEFIT AND PATIENTS' FEES

On Clause 2 (Fees for Services Provided) Sir ARCHIBALD SINCLAIR moved to omit Subsection 2, which secures that maternity benefit under the National Health Insurance Act, 1936, should, to the extent that the woman authorized, be paid to the local authority toward the fees for which the woman would be liable under the Bill for services provided by the local authority. Mr. ELLIOT pointed out that the subsection was purely an enabling one, but he recognized that there seemed a general desire for its deletion. The committee then agreed to Sir Archibald Sinclair's amendment, and Clause 2 as amended was added to the Bill. Clause 3 passed unamended.

On the question that Clause 4 stand part of the Bill Mr. PETHICK-LAWRENCE remarked that in some parts of the Bill the lying-in period was referred to without specifying any particular time, but that Clause 4 used the words "ten days immediately after childbirth." He suggested that before the report stage Mr. Elliot should substitute the words "the lying-in period" and not limit it to any particular number of days. Mr. ELLIOT said the reference to ten days in Clause 4 was because the rules of the Central Midwives Board for Scotland rightly prescribed that midwives should be responsible for cleanliness and give all necessary directions for securing the comfort and proper dieting of the mother and child during the lying-in period, which should be held, for the purpose of those rules and in a normal case, to mean the time occupied by the labour and a period of ten days thereafter. If the committee desired ten days might be altered to fourteen, but not to a general term such as "lying-in period," because this was a matter on which a prosecution might take place, and it was therefore desirable that it should be referred to in days. There was no specific consultation on this point with the organization of midwives.

The committee agreed that the clause should stand part of the Bill, and adjourned.

Consideration of the Bill was resumed on February 11.

On Clause 6 (Prohibition of Unqualified Persons Acting as Maternity Nurses for Gain) Major NEVEN-SPENCE moved to extend the prohibition to persons attending the lying-in, whereas the Bill limited the prohibition to those receiving any remuneration for attending. He said the clause opened the way to a whole host of busybodies taking part in nursing maternity patients. The greatest danger to which a woman could be exposed was to allow any person who did not understand antiseptic methods to come near her. Mr. T. M. COOPER said that the clause should be read along with the existing provisions contained in the Midwives and Maternity Homes (Scotland) Act, 1927, Section 1, which penalized any person not being a qualified person who attended a woman in childbirth otherwise than under the direction and personal supervision of a duly qualified medical practitioner. The person against whom Clause 6 of the Bill was directed was the woman who carried on the trade of a handywoman, attending women in childbirth or during the period immediately thereafter.

Major NEVEN-SPENCE withdrew his amendment, and said the case which he had put must occupy attention in the future if further progress was to be made.

On the motion of Mr. PETHICK-LAWRENCE fourteen days was substituted for ten days as the lying-in period if it should be increased to the larger term by the Central Midwives Board. Mr. COOPER said he would examine the Bill to see at what other places a similar alteration might be necessary.

ATTENDANCE IN MENTAL HOSPITALS

Mr. JAMES BROWN moved to leave out the exemption applying to mental hospitals, and said he had yet to learn that there was any large training in midwifery in asylums. Mr. COOPER said asylums and mental deficiency institutions were under a separate code of control under the supervision of the General Board of Control. This was a complete and skilled control, and full medical supervision and assistance was made available when confinements took place in these institutions. It seemed to the Government that the proper method of approach was to use the existing administration and control applicable to asylums and mental deficiency institutions, and not apply the drastic course of imposing penalties upon salaried officials of those institutions who might under supervision render service as nurses to a woman after confinement. He was willing to satisfy the House on the report stage that the existing control on the medical side of these institutions was ample to secure full protection for those who underwent confinement.

The amendment was withdrawn.

Mr. COOPER moved a drafting amendment to enable the operation of the Bill to be postponed until May 16, 1937, so as to get the benefit of the new awaited formula under the block grant. The committee agreed to the amendment, and the clause as amended was added to the Bill.

QUALIFICATIONS OF MEDICAL SUPERVISORS

On Clause 8 (Miscellaneous Amendments of Midwives (Scotland) Act, 1915) Major NEVEN-SPENCE moved to add in the subsection dealing with the appointment of supervisors the words: "such qualifications shall include practical experience in midwifery and maternity nursing subsequent to training." He said it was essential that anybody who was to supervise midwives in their work ought to have thorough practical experience. Mr. GRAHAM KERR seconded the amendment.

Mr. COOPER accepted the amendment subject to omission of the words "and maternity nursing." He said he was advised that in some parts of Scotland it would not be practicable to obtain supervisory medical men with practical experience in maternity nursing subsequent to their training.

With the proposed alteration the amendment was inserted in the clause. Major NEVEN-SPENCE then questioned the meaning of subsequent words in the clause, and Mr. COOPER explained that the whole subsection would enable the Department to prescribe the qualifications to which applicants for the position of supervisors would be required to conform, but there were sparsely populated districts in the Highlands where it was not possible to get persons in a position fully to comply with the general requirements. Elasticity was therefore essential, but relaxation of the general qualifications would be as sparing and infrequent as possible. On this explanation the clause as amended was ordered to stand part of the Bill.

A new clause dealing with facilities for instruction in midwifery and running as follows

> "In every area where there is a recognized medical school the local authority of that area and the Department of Health shall take steps to secure that adequate facilities are made available for the practical domiciliary instruction in midwifery of any person undergoing training with a view to becoming a duly qualified medical practitioner or a certified midwife"

was brought up and moved a second time by Mr. GRAHAM KERR. He said this new clause was pressed by four universities, three maternity hospitals, and the extramural medical schools of Scotland. He said that in civilized communities the operation of childbirth was apt to be interfered with by disturbing factors, which would often be detected only by the trained medical man, who perceived abnormalities by the heart, or the nervous system, or the internal organs of the body. These considerations showed the importance of the Scottish procedure of having a medical man in control during both the ante-natal and post-natal periods. The need for the new clause arose from the fact that the universities and other bodies believed the safeguards which they had provided so far were not sufficient. The training which a student underwent before he was "turned loose" on maternity cases was thorough and carefully defined by experts. He had to go through a training in obstetrics in a medical school, then went to a maternity hospital and got a specialist training there, and then began domiciliary work, at first under the supervision of someone from the hospital. The training authorities wished to maintain that system, but also to do more. The General Medical Council put it to universities and schools that present facilities must be improved and not merely maintained. That was why he moved the new clause, which had definite expressions instead of vague expressions.

The discussion was adjourned until February 16.

Physical Training of the Nation

In the House of Commons on February 8 Mr. OLIVER STANLEY moved a supplementary estimate for education services in England, Wales, and Scotland. He said he was asking for an excess amount of £96,000 on elementary education. There was an increase, among other things, in the special services—the school medical service, nursery schools, clinics, and the feeding of children. Dealing with the Government's new plans for physical training he said that the supplementary estimate would only enable them to carry on till the end of March. Legislation would be necessary for the new scheme, which had had a most encouraging response from the general public. The scheme was designed to deal with physical training and recreation; it was not and never had been meant to be a plan to deal with nutrition. Physical training and nutrition were complementary, not exclusive. No one would regard physical training and recreation as a substitute for good nourishment; but to give the impression that the great mass of our people were so underfed and so weak from lack of nutrition that they were unable to derive enjoyment or profit from physical training in games was a grotesque mistake. He believed that the scheme of physical training might be of assistance to nutrition, and that in working out the scheme they would gain a great deal more knowledge on this complementary problem. Mr. Stanley then explained the scheme in detail, and announced that Lord Aberdare had consented to become president of the advisory council.

Sir FRANCIS FREMANTLE said it was true that to get the best use out of physical exercises there should be proper nutrition and medical and dental attention at school. It did not follow, however, that they should wait until they had perfection before they made any advance with physical training. The medical profession as a whole would be out to help the Government in its scheme. It was essential that there should be a considerable change in medical education, which in the past had been the training of doctors in hospital to treat those who were sick. Students had not been properly taught this ideal of producing healthy bodies.

Sir ERNEST GRAHAM-LITTLE asked what methods were going to be adopted to see that positive harm was not done by the physical training of persons who were under-nourished. He said that the voluntary associations which were being entrusted with so much of the work under the Government's scheme were completely unequipped to undertake medical service.

Mr. ELLIOT, in replying to various questions, said that the supply of suitable clothes for physical training was a matter for the advisory council and the local committees. It would be very advisable that grants should be made for that where associations were unable to meet the need themselves. A Scottish organization would be set up under the scheme, which would be completely self-governing. There would be five regional committees for the whole country. Four of these would be grouped round university centres, which would permit of close association with the medical schools and other such organizations.

The House approved the Supplementary Estimate.

Instruction of Doctors in Anti-gas Treatment

Mr. GEOFFREY LLOYD told Mr. Duncan Sandys on February 9 that up to the end of January rather over 1,500 medical practitioners had completed courses of anti-gas training given by the ten Home Office medical instructors originally appointed. Six additional medical instructors were now at work. The aim was to give this training to all medical practitioners in the country willing to receive it, and there should be no need to allocate individual doctors to particular districts. Lists were available from which it would be possible at any time to notify to local authorities the names of those who had been trained in their respective areas.

Mr. SANDYS asked at what rate these practitioners were being trained, and whether all practitioners had been notified personally of the existence of the course. Mr. LLOYD said that practitioners had not been notified at present, though arrangements were available locally for the purpose. Doctors were being trained at the rate of 2,000 a month.

Poison Gas: Protective Measures Criticized

The House of Commons, on February 9, considered in committee of supply a supplementary vote not exceeding £153,000 for expenditure on public buildings. Mr. PRITT moved to reduce the vote by £100, and called attention to the expenditure on the Home Office civilian anti-gas schools. He urged that the expenditure of more money on these buildings was a criminal waste of public money because the policy behind it was wrong. He said that the Government proposed to teach people at Easingwold that, first, they should have gas-proof rooms and use them, and, secondly, that gas masks should be a second line of defence in the event of the gas-proof rooms being broken up, or if the people happened to be out and unable to get into the gas-proof rooms when trouble began. He wished to demonstrate, on scientific grounds, that this policy was really little better than a sham.

Mr. HUDSON said that the reason the Government was asking for the increase was that instead of thirty students being accommodated as at first intended, it was now proposed, at the request of the Home Office, to provide accommodation for sixty at Eastwood Park.

Mr. PRITT said it had been calculated that something like 8,000,000 people in the country were housed too badly for

it to be possible for them to set aside spare rooms as gas-proof rooms. None of the methods which the Government had disclosed so far and which had been tested in London would make a room gas-proof at Easingwold or elsewhere. Experiments which had been worked out demonstrated that this gas-proof room at Easingwold would never be worth the money spent on fitting it up and sealing it. Those experiments had been carried out recently on four separate and typical rooms. These rooms were sealed with the greatest care and in exact accordance with the Government's method. It was not unfair to say that each of the first three rooms leaked like a sieve after the attempt had been made to make them gas-proof, and even the fourth room, which was almost ideal for the purposes of sealing, leaked like a subsidized ship.

The whole fallacy of the Government's experiments was the idea that the walls did not admit air. The walls of this building at Easingwold, as of any ordinary building, admitted air with such rapidity that on a windy day the volume of air which could enter or leave an ordinary room made gas-proof by the Easingwold method in fifteen minutes was equivalent to the total volume of air in the room at any particular moment. If the room at Easingwold was typical of the experimental rooms, then a gas which would kill a person exposed in the open air in six minutes would kill a person inside the gas-proof room in sixty minutes. If the gas was so weak that it would take twenty-four minutes to kill a man outside the room it would kill him inside in two hours. If it took fifty minutes to kill a man outside the room it would kill him in the room in three hours. We ought not to spend one penny on Easingwold to teach people to proof rooms in that ridiculous fashion. If the rooms had applied to them everything that the Government desired in the way of making them gas-proof, they would still be in the position that a quantity of phosgene liberated three miles to windward would kill everybody in the room within two hours. If by any chance the room could be made gas-proof, the only result would be to suffocate the inhabitants. He understood that the Government proposed that five persons could live in a gas-proof room 10 × 10 × 8 feet for twelve hours. That worked out at half a cubic yard of air per hour per person. The general Home Office figures allowed a little more than that—namely, 3/5 of a cubic yard; the French allowed three times as much space, and the Germans four times as much. Long before twelve hours were passed all the persons in the room, in order the keep alive, would be breathing at four or five times the normal rate.

It had been said that in many respects gas masks were fairly satisfactory, but what was being done about the people who could not wear gas masks? A very large number were under 5 years of age, and they could not wear the masks, and a great many persons, especially in prominent positions, were far too old to wear them. He was told that gas masks offered a good protection against most gases, but was the Home Office satisfied that if all this money was spent on this new school it would help anybody to discover whether gas masks would keep out poisonous or otherwise dangerous dusts and smokes?

Mr. HUDSON, replying for the Office of Works, said that an air raids precaution scheme was being arranged. A committee was engaged in drawing up the necessary plans for old as well as new buildings.

The amendment was negatived, and the vote agreed to.

Mr. GEOFFREY LLOYD told Mr. O. E. Simmonds on February 10 that rubber, so far as the Home Office knew, was not attacked by any form of poison gas. Certain gas in liquid form was absorbed by rubber but the gas could be neutralized by subsequent treatment, leaving the rubber unaffected. The face-pieces of the gas masks now being manufactured by the Government were made of rubber.

Mr. GEOFFREY LLOYD, replying to Mr. Duncan on February 15, said that the recommended methods of gas-proofing houses were taught at the Civilian Anti-Gas School at Falfield, and gas was discharged against a number of wooden structures which had been erected on the range there for demonstration purposes. The Home Secretary was satisfied that the recommended methods of gas-proofing would be effective in affording a very great measure of protection against any type or concentration of gas which might be expected in the event of gas attack from the air. A room rendered gas-proof by the method used at the Falfield Air-raids Precautions Training School would be effectively protected if a quantity of phosgene gas were liberated three miles to windward to drift down-wind on the building.

On February 15 Mr. DUNCAN further asked the Home Secretary if the gas masks now being produced by his Department could be worn by children and old persons without discomfort and with adequate protection against gas. Mr. GEOFFREY LLOYD said the respirator intended for the civilian population had been specially designed to provide less resistance to breathing than the respirator issued to the Services. For this and other reasons it could be worn without discomfort by elderly persons and by children over 4 or 5 years. For infants and very young children a special device was being designed. The Government was satisfied, as a result of exhaustive trials, that the civilian respirator would effectively protect the face, eyes, and lungs against any type of gas which, so far as was known, could be used in war.

Mr. SORENSEN asked if Mr. Lloyd was aware that a group of scientists of some distinction, after investigating this alleged precaution, had declared that there was no effective precaution whatever. Mr. LLOYD said he was aware that some persons calling themselves the Cambridge Scientists Anti-War Group had made some observations on the subject, but it was not clear whether their interest was primarily scientific or political.

Declining Birth Rate

Mr. J. R. H. CARTLAND moved in the House of Commons on February 10:

> "That this House is of opinion that the tendency of the population to decline may well constitute a danger to the maintenance of the British Empire and to the economic wellbeing of the nation, and requests His Majesty's Government to institute an inquiry into and report upon the problem and its social and economic consequences and to make recommendations in regard thereto."

He said the birth rate had fallen steadily and persistently since 1875. At the same time population had increased, but that increase had been brought about entirely by decrease in the death rate. Within three years the number of births would, for the first time, no longer exceed the number of deaths. If every child that was born to-day was to live to the age of maturity the birth rate would still not be sufficiently high to maintain the population at the present level. The nation had twenty years in which it was possible to reverse this trend of declining population, or, if that was not desired, then steps should be taken in the twenty years to mitigate the disadvantages which appeared likely to arise. The first practical step was the appointment of an official inquiry, and the question why people were having fewer children to-day would be the first question that inquiry would have to consider. In the next eight years 500,000 fewer juveniles would be available for employment. What was going to happen when the stream of juvenile labour became a mere trickle?

The report of the Chief Medical Officer of Health for 1935 stated:

> "It is probable that the change in age-distribution will continue. If this forecast be correct the outlook upon the provision of many of the social services must undergo a gradual alteration; on the one hand are, for example, maternity and child welfare work, schools, institutions for the normal and abnormal young, and isolation hospitals; on the other hand, institutions for the care of the aged and old age pensioners."

The point the Chief Medical Officer made was that there was bound to be a reorganization of the health services. But what about housing? At the moment the supply of houses was about 1,000,000 a year. It had been estimated that in twenty years from now the housing need would drop to 4,500 a year and that in twenty years the House would also have a problem of redundant schools. There was bound to be a big increase in the number of pensions paid to people of old age and to widows and also to blind persons. The Ministry of Health could not do much more in lowering the death rate, which had been pretty steady since 1910. The expectation of life in this country had been increased by twenty years,

and tribute was due in that connexion to the work by the Ministry of Health. It was likely that the Ministry would be able to extend maternity services considerably and make a greater reduction in the number of deaths of mothers and children of early age, but that saving of life would not reverse the whole trend, which had been going on since 1875.

THE QUESTION OF BIRTH CONTROL

Mr. E. D. SANDYS seconded the motion. He said the main reason for the decline in the birth rate was increased knowledge and practice of birth control. To forbid birth control by making it illegal would, in the opinion of most members, be a retrograde step, and they did not wish by legislation to create large unwanted families. The course which would commend itself was to alter social and economic conditions to make people desire large families. One practical thing could be done immediately on the committee stage of the Factory Bill by incorporating in that Bill six weeks' cessation of work before as well as after childbirth, with a maintenance allowance for the woman and her child. Extension of nursery schools and crêches would bring great relief to the mothers, and no inquiry would be complete without investigation of the relation between housing conditions and population. The cost of education played a big part in the limitation of families among certain sections of the population.

Mr. H. PARKER said the Labour Opposition welcomed the suggestion that the Government should hold an inquiry into the population question. If the birth rate was to be increased people must be convinced that the maintenance of the race was desirable. There must be better maternity services, proper nutrition, and jobs for children when they became adults. Although at the present time a decline of birth rate was observed when the conditions of the people began to improve, yet good conditions made possible a longer period of childbearing, and Professor Carr Saunders had pointed out that this came to an end earlier among the labouring than among the richer classes.

ECONOMIC AND SOCIAL CAUSES

Mr. RICHARD ACLAND said birth control had not yet reached its maximum effect and he believed it would be wholly improper to oppose it. Children's clinics to-day were spreading healthy methods of birth control. The number of patients who came to the clinics to obtain advice as to how to have a child was equal to the number who came to ask for advice on how to avoid having one. The trouble was that the nation was profoundly ignorant of the causes which induced childlessness. They should point out to potential parents that their children at the age of 20 would not suffer the competition for jobs which the present men of 20 suffered.

Sir FRANCIS FREMANTLE said it was true that contraceptive methods enabled the decline in the birth rate to take effect rapidly, but long before these came within reach of the general mass of the people the decline had begun. Luxury in its real sense was possibly one of the greatest factors. Everyone wanted to be equal with his fellow, and there had come a stage when the desire for luxury and comfort had become a real factor in the question of population. The time was ripe for further inquiry, but the House must expect more from general publicity and from open discussion of the subject.

Mr. F. A. BROAD said the question was one of the psychology of life of the mass of the people and not one of poverty; people at the means test level had the biggest families. One of the factors preventing younger people having families was lack of housing accommodation.

GOVERNMENT INQUIRY

Mr. ROBERT HUDSON, speaking for the Ministry of Health, said the Government proposed to accept the motion. Since 1933 for the first time in our history the birth rate had remained stationary for four years in succession, and had not continued to fall. The actual birth rate for the last two years had shown a slight rise. Contraceptive methods were the means and not the cause of the declining birth rate. Some believed that recent propaganda in favour of the maternity services had decreased the birth rate by inducing a fear of confinement, but out of an average death rate of 1,355 per 100,000 among women only sixteen deaths were the result of pregnancy and childbirth. That could have no material effect in reducing the birth rate, but was more likely to be a psychological factor. The badness of rural housing might have a serious effect on the birth rate in the country, and the Ministry of Health was persistent in urging local authorities to improve it. They had still to decide whether there was any economic urge to reduce families and any possibility of altering it. At present there was a large preponderance of persons in the prime of life, and a time must follow when there would be an excess of older age groups. The present adult population resulted from years when the number of births per annum was around 900,000. The juvenile population of to-day sprang from years when the birth rate was between 500,000 and 600,000 per annum, and the number of old people was also the result of that time. The estimates of the future population which were being made to-day and had been quoted in the debate were quite possibly equally wide of the mark with those made one hundred years ago. The Government did not propose to set an inquiry on foot but to intensify its own inquiry. It would welcome any assistance, but the matter was essentially one for the Government, not for outside societies. He hoped that the inquiry would obtain enough information to indicate what the future policy should be.

Mr. MORGAN JONES asked if it would be a Departmental inquiry. Mr. HUDSON indicated assent, but said he could not now give any pledge that an interim report would be issued during the lifetime of the present Parliament.

After further discussion the motion was agreed to.

Non-tuberculous Employees at Papworth

Mr. ROWSON asked on February 11 if the Minister of Health knew that young men from the distressed areas and from Government training centres who were not suffering from tuberculosis were employed in Papworth workshops, Cambridgeshire, and worked side by side with persons suffering from tuberculosis; and if he had obtained the opinion of his medical experts whether or not this practice, from a health point of view, was desirable and should be allowed to continue. Sir KINGSLEY WOOD said he was aware of these facts. The young men worked in hygienic workshops and also in the open air. They knew before they came that they would be employed in a tuberculosis village settlement. They did not reside there. The tuberculous patients were under constant medical supervision and were trained in the necessary precautions to guard against conveyance of infection. Under these circumstances he was advised that no special risk was involved.

Sir FRANCIS FREMANTLE asserted that every precaution was taken at Papworth, and that there was practically no risk in these persons working side by side.

Mr. ROWSON said that the sole purpose of setting up sanatoria was to avoid infection and contagion. He gave notice that he would raise the matter on a motion for the adjournment and give the House further information.

Divorce in Scotland

In the House of Lords, on February 11, Lord ALNESS moved the second reading of the Divorce (Scotland) Bill, which extends the grounds on which decrees for divorce may be granted in Scotland. He said that the first ground for divorce in the Bill was that of desertion, and the second insanity. The period provided by the Bill during which the insanity must subsist was three years. The majority report of the Royal Commission held that insanity (*a*) defeated the purpose of the marriage relationship; (*b*) made marriage as a contract impossible of fulfilment; (*c*) lay outside the reasonable contemplation of the parties at the date of the marriage; and (*d*) differing from all other bodily disorders, involved the removal of the insane person, and so brought to an end every phase of marriage. The first of two objections which had been taken to insanity as a ground for divorce was that the

insane person might recover. The evidence before the Royal Commission established that after five years the cases of recovery were only 1 per cent., and after three years a very slightly higher ratio. Moreover, in the rare cases of insanity it was surely eugenically and otherwise undesirable that the parties should resume cohabitation and should breed. Insanity might recur at any time. Again, it was objected that lunacy was a misfortune, not a fault. That was true, but after all divorce decrees were not handed out on the footing either of punishment or reward. There were in Scotland 20,000 insane persons confined in asylums, and many of them were married. The Board of Control had not been able to provide him with the precise figures of those who were married, but it could not be disputed that there were at any rate thousands. Other grounds for divorce under the Bill were cruelty, penal servitude following on a sentence to that effect, or a death sentence which had been commuted to penal servitude for life. The Bill also provided that conviction three times of a crime since the marriage and within five years of the raising of an action for divorce, and sentence of imprisonment for not less than six months—the crime involving either dishonesty or personal violence—should be grounds for divorce. Habitual drunkenness was to be another ground.

Lord MACMILLAN, in supporting the Bill, said that although lunacy had not hitherto been a ground for divorce in Scotland it had commended itself to the Royal Commission. Lord STRATHCONA said at that stage he could not express either approval or disapproval of the principles of the Bill. It must rest with their lordships to decide according to their convictions.

The Bill was read a second time.

Regional Store Depots for Gas Masks.—Mr. GEOFFREY LLOYD announced on February 4 that two regional store depots for the storage of gas masks had been acquired, one at Manchester and one in the London district. These had between them a capacity of about 4,000,000 gas masks, and facilities for their inspection and preservation. Eleven more regional store depots would be needed, and urgent steps were being taken to obtain them. The system of distribution from these regional store depots was under investigation, and it was hoped that a suitable working arrangement would be devised, which would include the use of local store depots, each with a capacity of about 30,000 gas masks. More detailed information on the preparation of air raid shelters in private houses would be given by the handbook now in preparation. A handbook for factories and business premises was already published by the Air Raid Precautions Department.

Scottish Maternity Homes Nursing Staff.—Mr. ELLIOT, replying to Mr. Leonard on February 9, said that there were 129 maternity homes registered under the Midwives and Maternity Homes (Scotland) Act, 1927. He had no particulars at present of the numbers and qualifications of the nursing staffs employed in them, but he was taking steps to obtain information from the local authorities by which the homes were registered. These authorities had wide powers under the Act to secure an adequate standard of nursing.

Post-Dental Surgical Treatment.—On February 9 Mr. HUDSON informed Mr. Duckworth that the Minister of Health had no power to submit to any tribunal the general question whether post-dental surgical treatment should be a matter for the dentist or for the surgeon. The question whether any particular treatment was a service which a doctor could be called on to render under his insurance contract could be settled only on the facts of each individual case.

Investigation of Silicosis Deaths.—Captain CROOKSHANK, replying on February 9 to Mr. J. Griffiths, said that inspectors made full inquiries into all cases of deaths of miners alleged to be due to silicosis, in order to study the causes and give advice on appropriate preventive measures. Experience had shown that the present methods of inquiry were more effective for these purposes than the attendance of inspectors at inquests, and he did not propose to revert to that arrangement, which ceased in August, 1935, on his instructions.

Medical News

A conference of the British Health Resorts Association will be held at Bournemouth Town Hall on Saturday, March 13, when there will be discussions on "Wintering in England" and "The Curative Action of Sea Climate." All medical practitioners are invited to attend.

The British Association of Radiologists invites medical members of the British Institute of Radiology to a meeting at the Royal Society of Medicine to-day (Friday, February 19) at 5.30 p.m., when Dr. E. Lysholm of Stockholm will give an address on "Radiological Possibilities of Demonstrating the Exact Location, Size, and Pathology of Intracranial Expansive Processes."

At the meeting of the Central Midwives Board for England and Wales on February 4 the following resolutions were passed: (1) That as the term of office of every examiner on the list, as set out in a resolution of the Board dated April 4, 1933, has not yet expired, the list of examiners, as submitted, be approved for the year commencing April 1, 1937. (2) That the list of lecturers, as submitted, be approved for the year commencing April 1, 1397.

The St. Vincent Association has arranged a dinner to be held at the Old Cheshire Cheese, Fleet Street, on February 26, at 6.30 p.m., when Mr. Hector Hughes, K.C., and Dr. F. W. Crossley-Holland will speak on "Some Legal Aspects of Medical Representation." The hon. secretary is Mr. H. A. Mumford, Chalfont Court, Baker Street, N.W.1.

The next meeting of the European Society of Orthodontia will be held in Brussels under the presidency of Dr. De Coster on May 17 and 18. Further information can be obtained from the secretary, Mr. G. F. Cale-Matthews, 95, Newhall Street, Birmingham.

The seventeenth salon for the exhibition of works of art by doctors, dentists, pharmacists, and veterinary surgeons will be held at the Galerie Bernheim Jeune, 83, Faubourg St. Honoré, Paris, from March 14 to 21. Further information can be obtained from the general secretary, Dr. P. B. Malet, 46, Rue Lecourbe, Paris, 15e.

A joint meeting of the Fever and School Medical Groups of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, Russell Square, W.C., on Friday, February 26, at 5.30 p.m., when there will be a discussion on the control of whooping-cough.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, February 25, at 8.30 p.m., when a paper will be read by Mr. Paul C. Davie on "Silicosis: An Administrative Experiment."

The annual court of King's College Hospital, over which Lord Wakefield will preside on Tuesday, February 23, at 5 p.m., will be followed by the opening of a new wing for private patients, which has been given by the generosity of friends of the hospital on the Stock Exchange.

A meeting of the Section of Medicine of the Royal Society of Medicine will be held on Tuesday, February 23, at 5 p.m., when a discussion on "Milk as a Factor in the Cause of Disease" will be opened by Dr. W. G. Savage, Professor G. Selby Wilson, and Professor F. C. Minett.

The German Society of Internal Medicine will meet at Wiesbaden from March 15 to 18 under the presidency of Professor Siebeck, when the subjects for discussion will be the new foundations of nutrition, dietetic treatment of diabetes, the pathology of the thyroid, the origin of endemic goitre, and tuberculosis as a general disease. Further information can be obtained from Professor Siebeck, 1, Medizinische Klinik, Berlin, N.W.7.

At a meeting of the Illuminating Engineering Society to be held at the Lighting Service Bureau, 2, Savoy Hill, W.C., at 6.30 p.m. on Tuesday, February 23, a paper on diffusion and shadows will be read by Mr. Howard Long.

Speaking at the annual dinner of the Yorkshire Association of Medical Women at Harrogate, Dr. Letitia Fairfield said: "From the day that women were allowed to join the British Medical Association the Association had realized that in our interests and in their own it is essential that we should have equal pay for equal work. That sticks very hard in some people's teeth."

The issue of the *Bulletin de l'Office International d'Hygiène Publique* for December, 1936, is devoted to yellow fever.

The *Journal of the American Statistical Association* for December, 1936, contains a fine appreciation of Karl Pearson, who died on April 27, 1936, by Professor Raymond Pearl of Johns Hopkins University.

The issue of the *Wiener medizinische Wochenschrift* for February 6 is dedicated to the memory of Professor Leopold von Schrötter on the occasion of the centenary of his birth.

The current issue (August–October) of *Cirurgia y Cirujanos*, the official organ of the Mexican Academy of Surgery, contains a sympathetic obituary of Lord Moynihan, with his portrait.

Dr. Edward E. Prest, who is retiring after twenty-nine years as medical superintendent of Glenafton Sanatorium, New Cumnock, Ayrshire, attended a meeting on February 13 to receive a silver salver from the staff and a canteen of cutlery and a wireless set from subscribers in and outside the county.

During the week ended February 13 the number of deaths ascribed to influenza in the 122 great towns (including London) of England and Wales was 697, compared with 976 in the preceding week. In London the number of deaths from influenza was 50, against 101 in the preceding week, and the notifications of influenzal pneumonia in London were 94, against 132.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin).

QUERIES AND ANSWERS

Nephritis Following Gastric Ulcer Therapy

Dr. H. TREVOR RYAN (Cork) writes: People treated for gastric disorders with colloidal kaolin or magnesium trisilicate sometimes show signs of renal damage after a prolonged course of treatment. The albuminuria may be very slight and the presence of red blood cells will be overlooked unless they are sought for in the centrifuged deposit. Severe nephritis, which I ascribe directly to the use of these compounds, has developed in three cases that have come to my notice. I should be interested to know if any of your readers have had any similar experience.

LETTERS, NOTES, ETC.

Memorial to Dr. Hennessy

The proposal to found a memorial to Dr. Thomas Hennessy, who was Irish Medical Secretary of the British Medical Association from 1914 until his death at the beginning of last year, was announced in a circular letter reproduced in the *British Medical Journal* of August 29, 1936 (p. 440). The chairman of the fund, Dr. C. J. MacAuley, the honorary secretary, Dr. J. P. Shanley, and the Medical Secretary of the Irish Free State Medical Union (I.M.A. and B.M.A.) inform us that the fund will be closed definitely on March 1, 1937, and that further contributions will be gladly received before that date. These may be sent to the honorary secretary, Hennessy Memorial Fund, 18, Kildare Street, Dublin.

Obstetrics and Gynaecology at Otago

The second report of the Department of Obstetrics and Gynaecology in the University of Otago, New Zealand, deals with one thousand consecutive deliveries and the concurrent work of the Gynaecological Section, covering the period from March, 1934, to May, 1936, inclusive. The previous report, issued in 1934, recorded a similar series of one thousand deliveries conducted without a maternal death. In the series now reviewed three deaths are reported, comprising one case of eclampsia admitted moribund, one of cerebral haemorrhage in the thirty-first week of pregnancy, and one of post-partum haemorrhage at full term. The maternal morbidity, however, is unusually low, with a rate of only 0.7 per cent. of cases classed as morbid in accordance with the B.M.A. standard. During the same period there has been a marked diminution in the death rate from puerperal sepsis through the whole of New Zealand. Of the seven cases of maternal morbidity cited in the report six were of mild pyrexia, and one only of notifiable puerperal sepsis. In the last-named case the condition followed a combination of adverse circumstances —namely, contracted pelvis, high forceps, episiotomy, lacerated vagina, post-partum haemorrhage, and manual removal of the placenta. The report also deals with 1,056 gynaecological cases; of these 268 underwent abdominal and 512 vulval or vaginal operations, the remainder receiving conservative treatment. Of the total 935 are noted as cured, and a further 103 as relieved. Post-operative mortality was only 0.77 per cent., and three of the six deaths in this group were due to pulmonary embolism.

Academic Costume

"X. Y. Z." writes: The approach of the Coronation has stimulated an interest in uniforms and robes. Anyone who has attended medical meetings at which academical dress is worn must have noticed the inadequacy of that prescribed for the holders of certain qualifications, including very high qualifications, of the various medical corporations in contrast with those of the universities. Those who have studied academic costume are aware that from time to time alterations have been made. I suggest that this year is an appropriate time and would be a gracious act if the authorities of the great institutions whose robes do not at present possess a hood added an appropriately coloured one, and made it retrospective (it would affect approximately 75 per cent. of registered medical practitioners) in commemoration of the Coronation of King George VI.

*** The hood is a badge worn over the gown to indicate a degree. Since corporations other than universities do not confer degrees "X. Y. Z.'s" suggestion seems to be impracticable.

Corrigenda

We regret that in our account in the *Journal* of February 13 (p. 347) of the discussion on peripheral nerve injuries at the Royal Society of Medicine *Mr. John P. Hosford's* name was wrongly given as Mr. Reginald Hosford (p. 348).

In our review of *An Ethiopian Diary*, by Dr. J. W. S. Macfie (February 6, p. 273) the University Press of Liverpool should have been mentioned as publishers.